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October 13, 1969

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RAILWAY AGE

THE TRANSPORTATION WEEKLY

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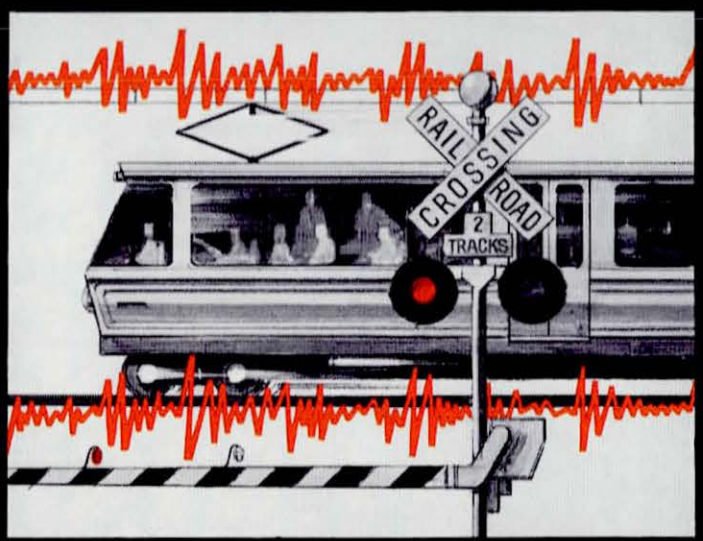

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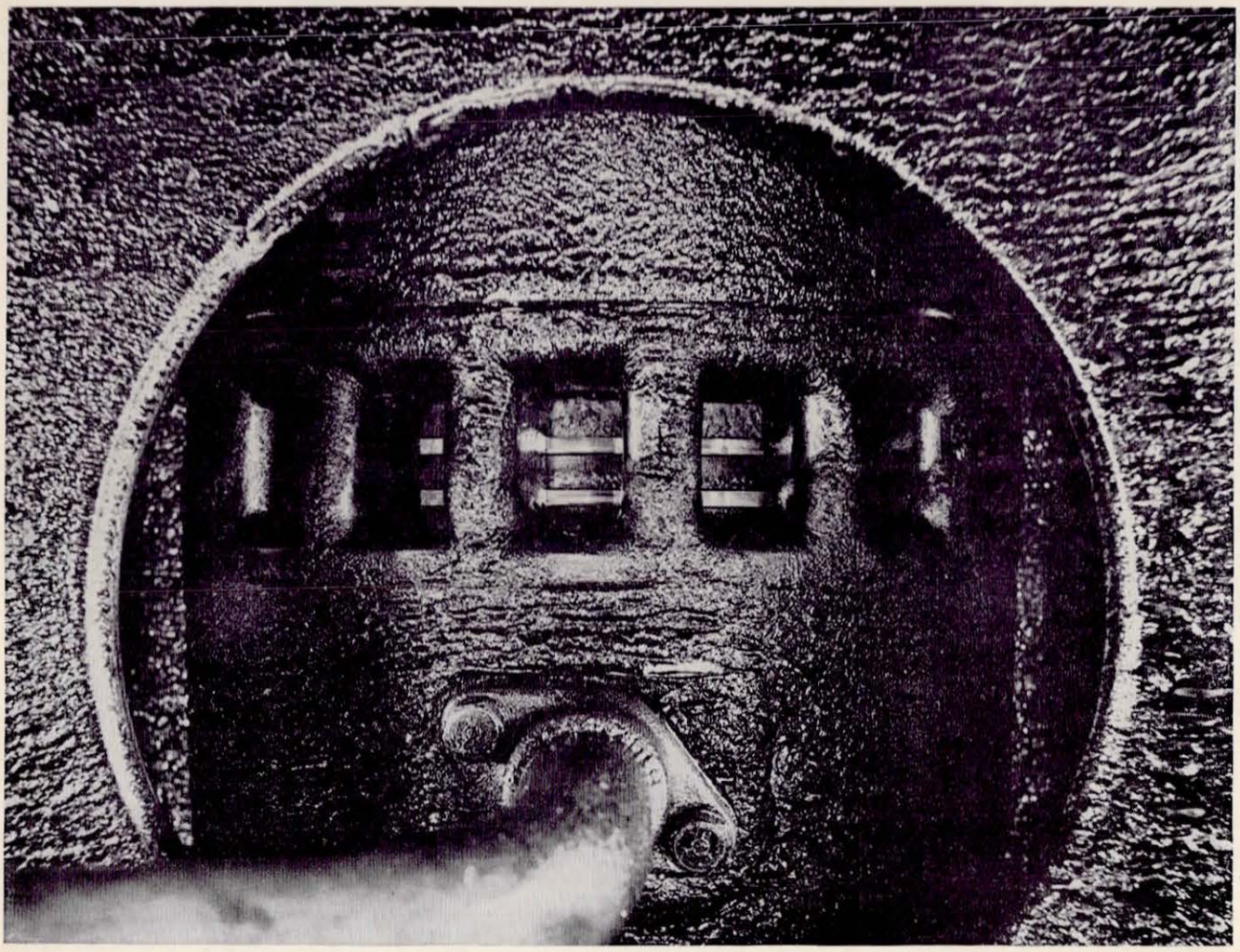

You're looking through the No. 3 cylinder air box inspection covers of identical EMD SD-40 engines in comparable service on the Western Maryland Railroad. Photo above, left, shows engine condition after 93,847 miles since factory delivery on the most widely used conventional oil. Photo above, right, shows condition after 94,360 miles since factory delivery on high-dispersant Shell TORNUS® Oil. Look at the difference.

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"We've got over 40 critical units on Tornus Oil," explains a spokesman. "Including the newest and the oldest, all in drag freight.

"The use of superior high-dispersant oils has allowed us to extend our overhaul cycle from four to six years. We're on a 14-year depreciation basis, so we eliminate that third overhaul—eliminate an 18-day outage—and save at least $25,000 in overhaul costs alone.

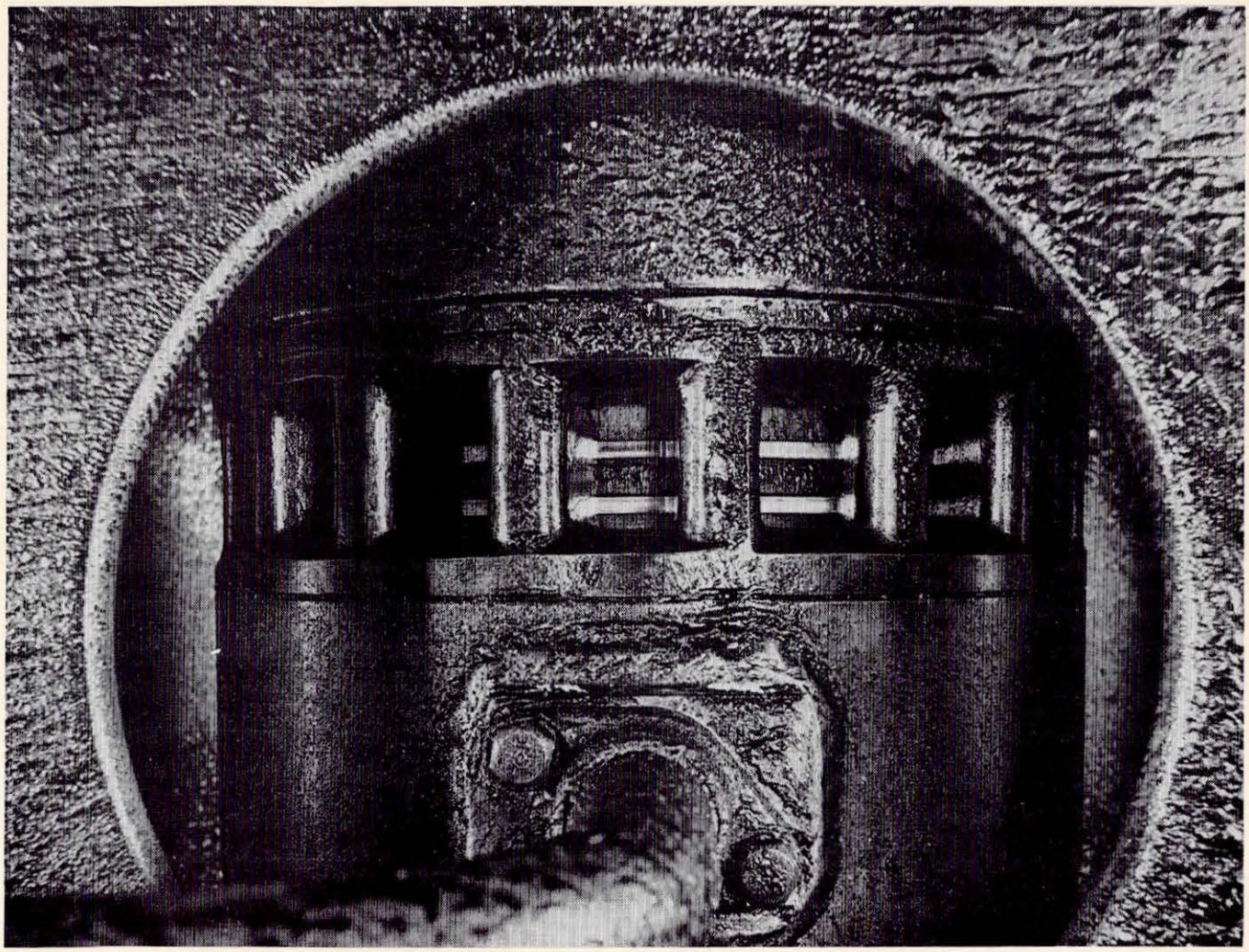
"Sure, high-dispersant oils keep an engine clean. For example, our units on Tornus no longer get an oil cooler cleaning between overhauls But cleanliness alone wouldn't have let us extend our overhaul cycle.

"What really counts is power utilization. That's what Tornus gives us."

"We've eliminated engine failure caused by water."

"Water leakage used to mean one thing—drop the bearing caps and inspect for damage. Likely as not, we were faced with a major overhaul.

This one's $25,000 cleaner.



"We found that high-dispersant oil can swallow water. It may become so loaded with water, the oil looks like milk, but we don't have to drop the bearing caps.

"We have eliminated engine failure caused by water. Again, the big factor is power utilization."

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RAILWAY AGE

October 13, 1969 • Vol. 167, No. 14

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. . . AND COMING NEXT WEEK

TOMORROW'S RAILROADS: No. 10 in this series explores the interests of railroad employees and the manner in which they coincide and at times conflict with management interests. Rail management, it suggests, and the organizations representing rail labor, must start working together, pulling together, thinking together.

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SHORT AND SIGNIFICANT

SCL wins OK for $22-million program

The ICC has given Seaboard Coast Line authority to issue $22-million in long-term unsecured promissory notes to finance a broad modernization program that includes: (1) $9.2 million for extending CTC between Hamlet, N.C., and Atlanta, Ga., beginning late this year; (2) $3.6 million as 20% down payment on 73 diesels ordered for delivery starting in December 1970; (3) $3 million as 20% down payment on 60 diesels ordered for delivery between January and March 1970; (4) $2.5 million as 20% down payment on 1,000 new 70-ton, low-side gondola cars not yet ordered but planned for 1970 delivery; (5) $1.7 million for construction of diesel facilities at Tampa, Fla.; $1.4 million to rebuild 200 gondola cars at SCL shops starting this month; (7) $1.4 million as 20% down payment on 500 woodchip gondola and hopper cars ordered for delivery in April and May 1970; (8) $277,000 as 20% down payment on 20 rebuilt rotary dump covered hopper cars; (9) $767,500 for expansion of the yard at Greenwood, S.C. This adds up to $24 million. The balance will be financed either by conditional sale agreements or by equipment trusts, with authority to be sought when needed.

Flexi-Flo terminal opened in Detroit

Flexi-Flo service became available to Penn Central's Michigan customers Oct. 6 with the opening of a new terminal at Summit Yard in Detroit. The Detroit terminal is one of two to be opened this year, bringing the total to 13. In Flexi-Flo, both liquid and solid chemical and food products are transported in covered hopper cars and tank cars to terminal points, where the contents are transferred to highway trailers by vacuum, pressure-differential or other mechanical methods.

Ex-DOT official heads Transport Data Committee

Edward A. Guilbert, formerly director of the Office of Facilitation in the Department of Transportation, has been appointed president of the Transportation Data Coordinating Committee. He replaces Charles H. Wager, who will continue to serve TDCC as a consultant. The committee's member companies include shippers, railroads, motor carriers, freight forwarders, water carriers and investors. TDCC's goal is "to develop, foster and maintain an active program for the coordination and standardization of transportation data processing, commodity descriptions and codes, tariff formats, systems design and related areas."

N&W, C&O/B&O alter inclusion terms for Reading

A new condition for inclusion of Reading in the N&W-C&O / B&O merger was presented to the ICC last week. The merger partners asked the Commission to approve their agreement with Reading that Reading now would have the right to ask Dereco, its prospective holding-company owner, to "acquire substantially all the assets of Reading Co. at a price to be agreed upon"—instead of the original plan for an outright exchange of Dereco stock for Reading stock. Reading on June 18 asked the ICC for permission to seek the change.

SFI seeks 100% of outstanding ATSF shares

Under a complex plan of acquisition, Santa Fe Industries is going for 100% of the preferred and common shares of Santa Fe Railway. SFI now holds about 99% of the shares of each class as a result of an exchange offer made in June 1968. But, says SFI Chairman E. S. Marsh, acquisition of 100% "will provide desirable flexibility in corporate structuring, enabling the grouping of Railway and its subsidiaries on the most efficient basis and facilitating optimum utilization of assets and personnel." The problem is that Railway is a Kansas corporation while SFI is a Delaware corporation, and a plan such as that proposed can't be carried out under present Kansas law. So, Railway will first be merged into a Delaware subsidiary which, in turn, will be merged into a Delaware subsidiary of Industries.

MONDAY MORNING REPORT

CP IS CHALLENGING THE FORMULA

North of the border there has been a seeming reversal of roles which last week found Canadian Pacific, long openly unenthusiastic about passenger trains, winning approval for legal action that could keep many of Canada's money-losing runs on a bit longer. At the same time, Canadian National—North America's passenger-train champion of the 1960's—was apparently less than happy about CP's action with its implications for possible delay in discontinuing much of CN's passenger service or for assuring subsidy to those trains Federal authorities feel should survive.

SUBSIDIES ARE THE CRUX OF THE MATTER

What happened was the Canadian Supreme Court's "leave to appeal" which will allow CP to contest the new formula under which the Canadian Transportation Commission can fix subsidies for deficit-ridden passenger services and money-losing branch lines. Canada's National Transportation Act of 1967 requires that CTC certify which operations qualify as passenger services under the Act before a railway can apply for discontinuance or become eligible for subsidy. CN asked for such certification in May and indicated that its "Corridor" runs between Quebec City and Windsor, Ont., were the only ones that are not money losers. In July the complicated formula was unveiled for subsidies covering 80% of the loss on any deficit operation.

CP WANTS TO GET OUT, TOO

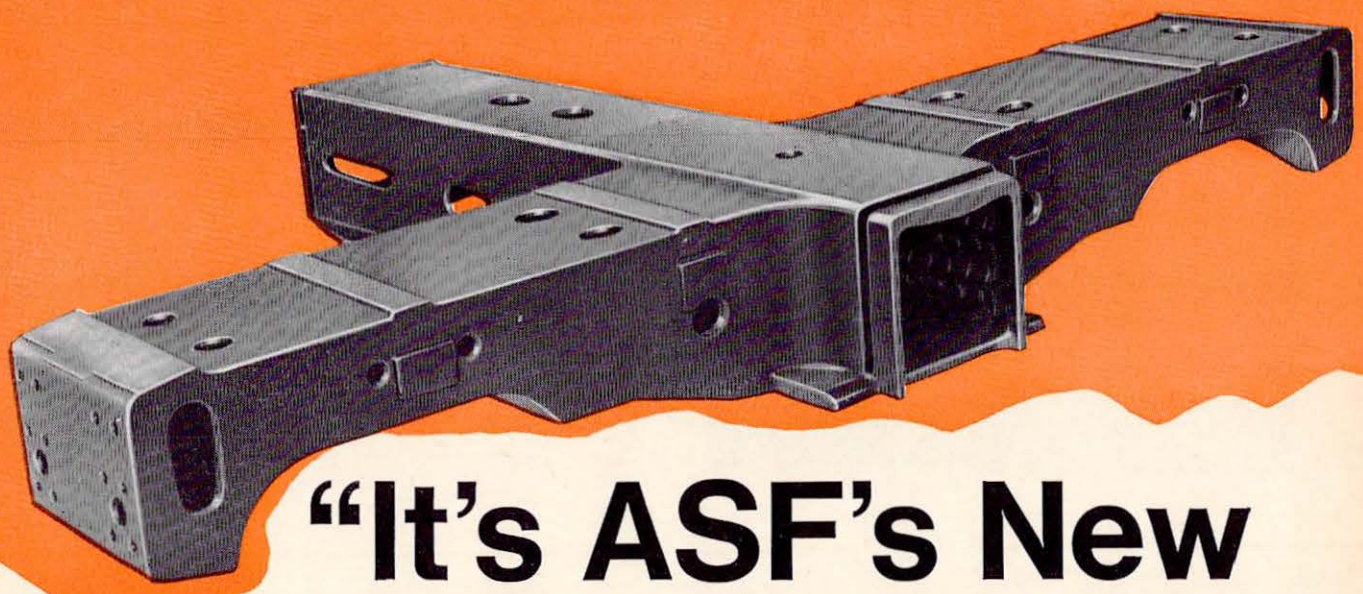
CN apparently is willing to accept the formula as it is, but CP, equally anxious to discontinue passenger trains and many branch lines, is challenging the formula which it must use to demonstrate its losses. While the formula was in the making for more than two years, CP says that the Commission did not observe the Transportation Act's definition of policy on public services: "Each mode of transport, as far as practicable, shall receive compensation for resources, facilities and services that it is required to provide as an imposed public duty." CP position is that the tough new formula for determining depreciation and allowance for investment in uneconomic facilities fails to live up to the principles of the act.

COULD SLOW ACTION ON CN TRAIN-OFFS

While CN seems to be avoiding comment, it seems probable CP's clearance for an appeal to the Supreme Court of Canada could hold up action on CN's train-off applications which cover all territory outside the Windsor-Quebec corridor and, CN says, would completely eliminate its passenger deficits.

It's a bird?

It's a plane?



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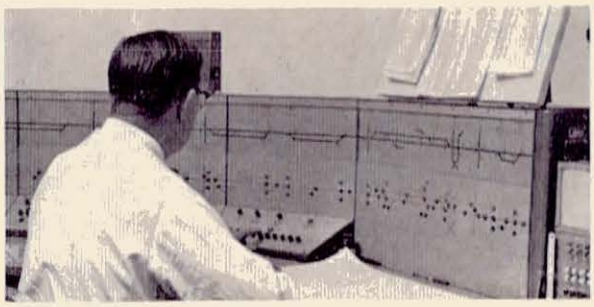

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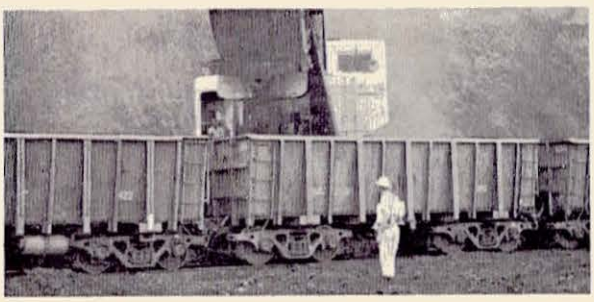

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RAILWAY AGE
THE TRANSPORTATION WEEKLY
OCTOBER 13, 1969

President names emergency board in shopcraft dispute

The Nixon Administration had hoped to remain on the sidelines in the shopcraft unions' wage dispute with the nation's railroads. But hope went out the window, with the four shop unions threatening an Oct. 4 strike against six major lines and with virtually every other railroad vowing to shut down if a strike occurred. With hours to spare —but not many—President Nixon signed an executive order creating an emergency board. His choices for board members: Ralph T. Seward, Washington arbitrator; Robert Livernash, Harvard labor relations expert; and Robert Howlett, director of the Michigan State Mediation Service. Under the timetable set up in the Railway Labor Act, they're to investigate and report back to the President within 30 days; and for an additional 30 days, neither party to the dispute may take action. Labor Secretary George P. Schultz entered the case ahead of the President, with an attempt at personal mediation. But White House action became necessary when, as one spokesman put it, government saw that "the parties wouldn't be able to resolve their differences in the period available." Strike-threatened roads were Santa Fe, Great Northern, Illinois Central, Southern, Erie Lackawanna and C&O/B&O.

WEEK AT A GLANCE

Freight-car orders top 60,000 in first eight months

The flow of new freight-car orders slowed in August—but the 2,679 orders placed were sufficient to send the year's total to 60,072. That is as many orders as some industry observers thought, back in January, that the entire year would produce. What happens in the remainder of this year will depend to some extent on whether Congress accepts the Senate Finance Committee's decision to permit railroads to continue to use the 7% investment tax credit on a phase-out basis. In the last five years, orders for new cars placed in the last four months of the year have ranged from a low of 21,404 in 1967 to a high of 33,102 in 1968. During the same period of 1964, 26,185 cars were ordered; 1965, 1,700; 1966, 27,493.

Shippers see a 5% ton-mile increase in fourth quarter

Freight carloadings in the fourth quarter of 1969 are expected to be 3.6% higher than carloadings in the fourth 1968 quarter. Loadings in the fourth quarter of the current year, it is estimated, will total 6,574,250, according to an AAR summary of forecasts by the Regional Shippers Advisory Boards. In terms of ton-miles, an increase of 5% is expected over the final quarter of 1968. Eleven of the 13 Boards reporting to the AAR's Car Service Division predicted increased loadings in their respective territories. The two Boards expecting decreases were the New England and Pacific Northwest. Commodities for which the highest percentage increases are forecast are citrus fruits (25.3%), other fresh fruits (12.9%), fresh vegetables, not including potatoes (12%), cotton (11.9%), ore and concentrates (11.8%). The commodity with the largest decrease will be live stock (4.3%).

Region	Estimated Loadings Fourth Quarter, 1969	Percent Change
New England	83,145	5.6 Dec.
Atlantic States	465,068	2.0 Inc.
Allegheny	677,093	7.2 Inc.
Ohio Valley	903,984	1.2 Inc.
Southeast	1,074,725	3.0 Inc.
Great Lakes	510,898	6.9 Inc.
Central Western	268,369	4.2 Inc.
Midwest	735,264	3.4 Inc.
Northwest	370,145	9.1 Inc.
Trans-Missouri-Kansas	440,827	6.7 Inc.
Southwest	452,031	2.8 Inc.
Pacific Coast	362,879	1.9 Inc.
Pacific Northwest	229,822	4.2 Dec.
Total	6,574,250	3.6 Inc.

GUS WELTY

LINES ON LABOR

IN THE END, there was no alternative. There had to be an emergency board in the shopcraft wage case. But before President Nixon put his pen to the executive order, he and his secretary of labor managed to keep a lot of people off balance. It was a common question among railroad men, shippers, reporters and maybe even union folks: "He has to name a board—doesn't he?"

THERE WAS A CHUCKLE or two in the beginning, when the shopcrafts announced a "selective" strike that would tie up one-fourth of the industry. According to the unions, there would be no need for an emergency board. To most observers, it seemed that the shopcrafts were saying one thing and doing another. One union man (outside the shop unions) scoffed: "If they really wanted a strike, they'd have picked a couple or three roads—not six, and not those six." A reporter recalled the old song which goes something like this: "Her lips tell me 'No, no,' but her eyeballs say 'Let's go.' "

NONE OF THIS really matters, now. What matters is that the dispute will get an airing by neutrals—by a board headed by a man who's no stranger to the toughest of rail labor disputes. Ralph T. Seward, it may be recalled—and who could forget?—was the chairman of Arbitration Board 282 in the fireman-off/crew-consist case.

BOTH THE ADMINISTRATION and the railroads have expressed hope that the emergency board's efforts can help to produce a settlement between now and early December. The shopcrafts seem less optimistic.

EMERGENCY BOARDS have succeeded sometimes, failed sometimes. An emergency board got nowhere in the case which was finally decided by Seward's Board 282. An emergency board was also of little use in the 1967 shopcraft wage case. In other disputes, board reports have been the basis for settlement—either as written or, often, with sweetening added as the unions try to bargain upward from the recommendations.

IT'S IMPOSSIBLE to guess what the Seward board will come up with in the current case. It's equally impossible to figure the reaction of the parties. The railroads, for instance, usually accept reports as issued. The unions usually don't, at least in the beginning. But this has been an unusual case, with its share of surprises. And perhaps the Administration has not heard the last of the shopcrafts vs the railroads, from one side or the other—or from both.

Signalmen add up new wage demands: They total 54%

Once again, the Brotherhood of Railroad Signalmen is coming in with a hefty package of demands covering wage increases and skill differentials. This time, by BRS figures, the demands add up to 54% for skilled employees, 39% for semiskilled and 30% for unskilled.

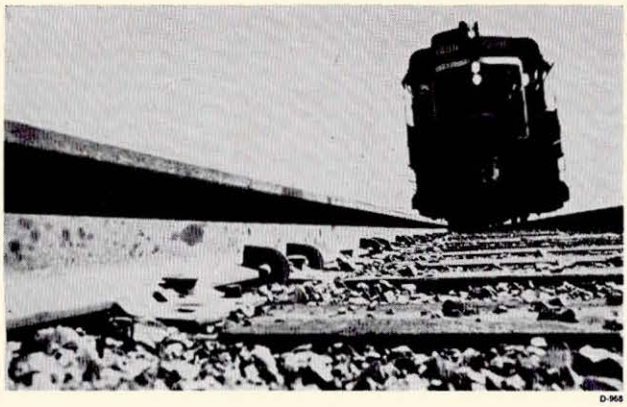
The package breaks out this way: (1) Across-the-board wage increases of 12% on Jan. 1, 1970, of 10% on Jan. 1, 1971, and of 8% on Jan. 1, 1972; (2) increases of 4% for skilled employees every six months for three years beginning Jan. 1, 1970; and (3) increases of 1½% for semiskilled employees every six months for three years also beginning Jan. 1, 1970. BRS claims representation of 11,500 employees—84% of them in skilled classifications. Last time around, the union sought a 25% wage increase in three steps and a 90-cent-hourly skill differential in five steps. The dispute was settled last April on terms slightly in excess of those recommended by an emergency board (RA, April 28, p. 7).

Boyd stresses need for research

Can the railroad industry afford to spend more for research? As Illinois Central President Alan S. Boyd sees things the industry can't afford *not* to plunge more heavily for research. And, he adds, IC is backing the words with action: "We will expand our research program in 1970. The over-all program will still be too modest, but it will be a step down the road we need to travel. We hope to lead in research programs grappling with the software aspects of R&D—the commercial, managerial, social and organizational aspects of operations as large-scale and as historically hide-bound as they tend to be in rail companies."

Boyd said he is convinced that "railroad companies and railroad suppliers should collaborate more with men and money and facilities on a systems approach. . . . It will be helpful if we can persuade government to invest in rail research—but we cannot afford to sit back and just hope for it.

"Research isn't the total answer—but it can lead to major improvements in the way we do business," asserted IC's president.



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Railroads are facing a "Shelly" problem. Heavier, high speed trains batter the outer rail on curves causing corrugation, flow, shelling, and curve wear. All shorten the safe life of rails.

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*Additional engineering information on request.

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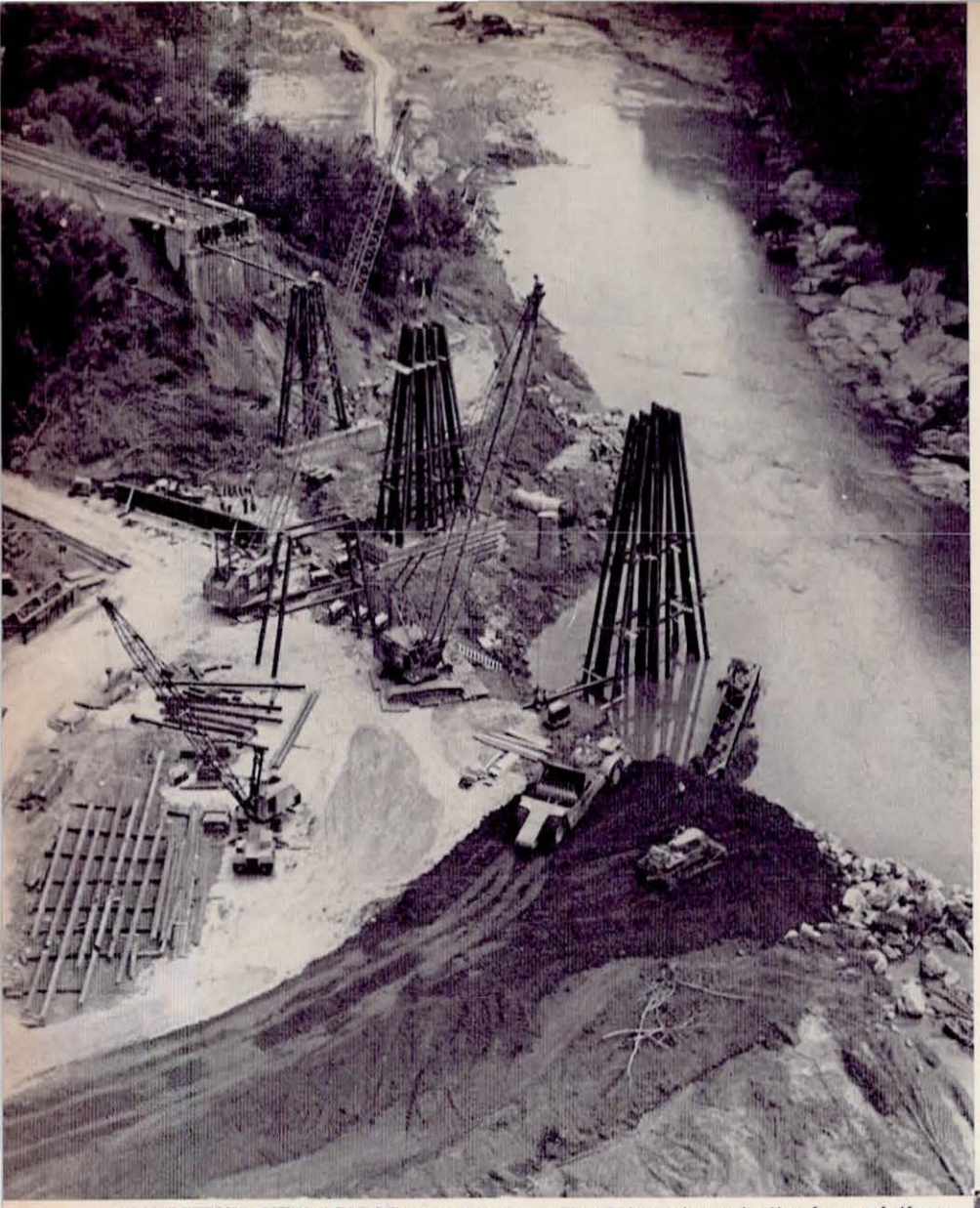
AFTER CAMILLE:

The hurricane, among other things, knocked out a major bridge and caused nine big track washouts. But it took only three weeks for full resumption of service on the Southern.

By FRANK MALONE
WASHINGTON



SOUTHERN'S NEW BRIDGE over the River Tye takes shape in the form of (from right), one double four-pile 55-foot tower on a surviving concrete base, one quadruple four-pile 80-foot tower with concrete reinforcement (not base), and one 80-foot tower going into bedrock beneath the water.

The need for fast bridge replacement required discarding conventional methods

WITH RESTORATION COMPLETE, construction equipment is prepared for removal from the Tye River bridge site as a Southern Railway train moves south over the new structure. Track-carrying spans rest on all-steel bents or towers.

How Southern bridged a crisis

Mention hurricane Camille to a Southern employee, and you may be surprised that the reaction is an easily-discerned look of pride.

True, the flooding that Camille blew into Virginia in August brought operations to a halt on Southern's superbly-maintained, welded-rail main line south from Charlottesville. True, Southern suffered the loss of a major bridge, nine huge track washouts, and 53 minor incidents of water damage. True, traffic detours and repair expenses cost Southern a still-undetermined but substantial amount of money.

What Southern people are beaming about is the way they reacted to all that. The water came early on Aug. 20. Southern's announcement of full service resumption came just three weeks later, on Sept. 8.

Within that time there was a bridge-building feat that included the discarding of conventional methods. Not only was a radical bridge design adopted, but the feat was colored further by combining use of available new materials with a remarkable salvage job. Parts of the washed out bridge and of an abandoned bridge contributed to the recovery. The new bridge over the River Tye represents the most dramatic reason for Southern's prideful countenances.

● **Steel towers.** What's radical about the new bridge is that the track-carrying spans rest on all-steel bents or towers about 80-ft high. The old bridge, like most conventional high-level rail bridges, rested on steel bents which in turn rested on concrete piers.

Southern engineers worked out details of replacement by conventional methods but quickly realized that an alternative would be required. Materials for conventional construction could not be obtained within an acceptable time limit.

The alternative adopted was based on Southern's experience in the use of all-steel-pile supports in trestle work for relatively low-level structures.

● **Reasons behind design.** There were a number of reasons why J. W. DeValle, chief bridge engineer, suggested and R. A. Kelso, chief engineer, and W. H. Moore, operating vice president, concurred in the decision to try the new design.

The reasons were strong. The strongest was that of the time saving to be realized. As DeValle reports it: "There was no question about design strength. We knew our engineering requirements and could meet them. So we decided to go ahead even though the novelty of our approach meant we had to devise erection procedures not previously used."

Thus, on Aug. 25, the decision was made for the radical design. Another solid reason behind that decision was the fact that Southern had been stockpiling 12-inch H-section steel piling at Chattanooga—precisely for use in emergencies. The immediately available steel could be moved quickly to the Tye site, and steel wholesalers

WORKMEN ERECT one of four 80-foot all-steel towers for new Tye River bridge.

RESTORATION WAS A FAST JOB

WELDERS JOIN 12-in. steel beams to form the legs of an 80-foot bridge support.

could soon provide the rest that was needed.

● **Construction round - the - clock.** Aug. 25 was a Monday. On the following Thursday, there was enough material on the scene to start work. Welding forces moved simultaneously on two projects. One was construction of the steel templets that would serve as temporary guides for the pilings. The other was the welding of short lengths of H-piling into the minimum 80-ft lengths required.

By Saturday, the first support structure was in place. It was a double 4-pile bent about 55 feet tall. It was erected on one concrete pier that had remained in place on the north bank. On Sunday, the first 60-foot girder was lowered onto the piling. Next came four all-steel towers, 80 feet high. They were erected around templets set directly on a bedrock base in the river. Each tower consisted of four rows of four pilings each.

With workmen going 12 hours on and 12 hours off, 24 hours a day, a second 60-foot girder section soon stretched out farther across the Tye. Then three 100-foot spans, and finally one 60-foot girder reached the undamaged south bank section of the old structure.

The first train moved across the new bridge at 4:26 a.m., Sept. 8, barely 11 days after arrival of the first material for reconstruction.

Even though the loadbearing pressure goes directly to the bedrock beneath the water, 600-ton concrete blocks were added at the base of each steel tower. The blocks contribute nothing to the loadbearing ability of the pilings, but are used to provide stabilizing weight.

● **Girder story, too.** The River Tye story, however, does not end with the steel pilings. There is a story in those girder spans, too. Six spans were needed. There were none available from the steel plants within an acceptable amount of time. Fortunately for Southern, three 60-foot sections from the old bridge could be recovered from the river. Even more fortunately (and as a tribute to Southern foresight), three 100-foot beams were available from an abandoned bridge over the Tugaloo River in South Carolina. The abandoned structure had been one of two side-by-side bridges. It was abandoned when the line went to centralized traffic control. However, rather than sell the steel for scrap, Southern decided to leave it in place as an emergency stock.

● **Still another story.** The availability of the spans in South Carolina was one thing. Getting them to the Tye construction site was another thing—and another story. Access by rail to the north side of the bridge location was blocked by washouts. Delivery to the south side, which could be reached by rail, was useless because of a steep rock embankment preventing the handling of the girder spans there.

The only practical though undesirable course was to move the girders by rail to an unloading point south of the bridge, cut them apart and then transport them over available secondary and country roads on highway dollies. This would have involved cutting trees and relocating interfering power and other utility lines. It would have been slow. It would have required reassembly at the job.

Had this course been followed, Southern probably would not have been able to open its new bridge when it did. However, track restoration in the washout area was being pushed forward and began to offer a new hope.

On Sunday before Labor Day, clearance engineers began to plot a rail route from Glasgow, Virginia, south of the bridge, to which the girder spans had been shipped. They found a route that would work—just barely at some points—and the girder spans were soon moving on a circuitous route some 350 miles in length that would deliver them about 10 miles from their starting point. But that would put them on the north side of the river where they could readily be handled and placed in position.

Southern's lines were used to move the girders to Richmond. There they went to the C&O for movement west to a junction with Southern's line north of the damaged track area which was restored in time for delivery to the bridge site to meet erection schedules.

● **Quarries nearby.** A contributing factor in the speeded-up repair of track washouts was the location of rock quarries along the lines. These regularly supplied Southern with ballast, and were equipped to meet the emergency demand.

Considering the fact that everybody in the area was casting about for construction manpower and equipment in the emergency, Southern, nevertheless, was able to get experienced contractors for the bridge erection.

Involved in the Tye River project were: Oman Construction Co., Nashville, the general contractor and provider of equipment and concrete; A. J. Metler, Inc., Knoxville, steel erection; and Bankhead Railway Engineering, Atlanta, welding. ■

CAMILLE HIT THE L&N, TOO

But this concrete bridge hung on

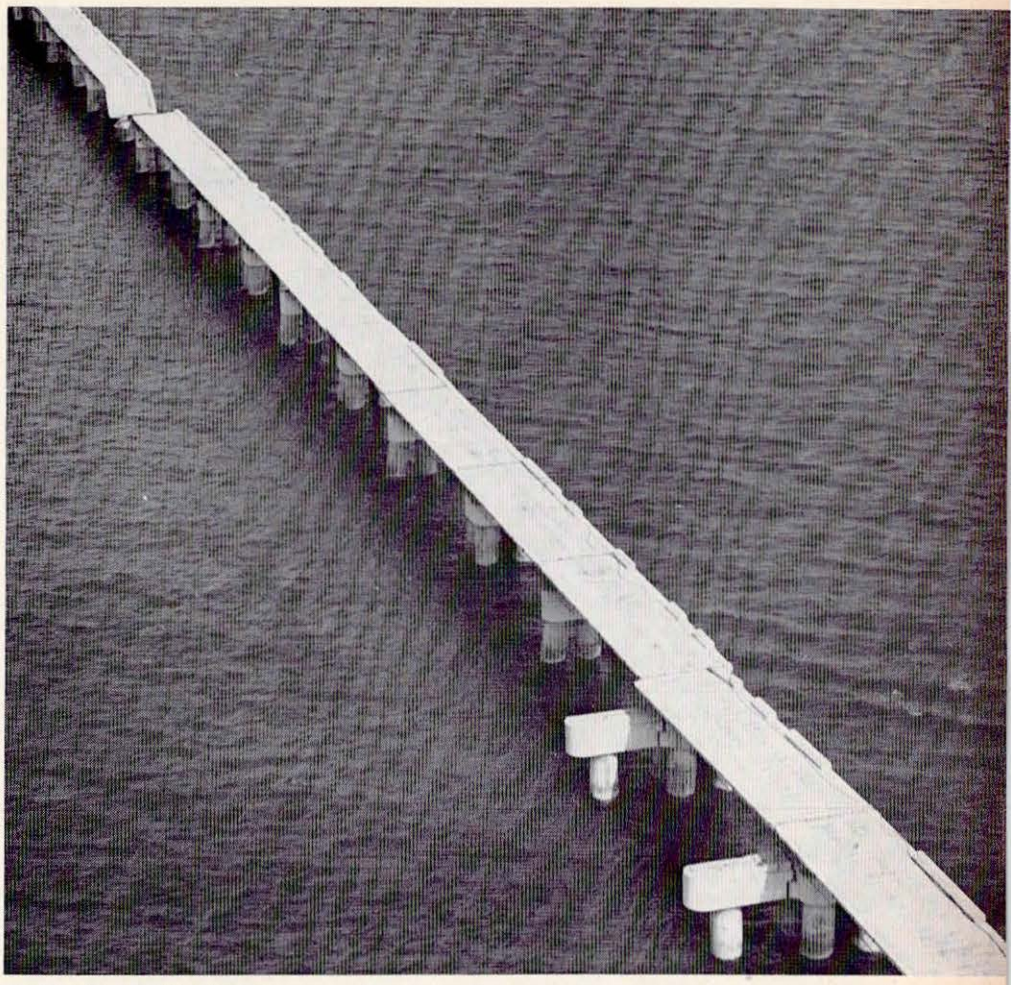
After Hurricane Camille, Louisville & Nashville's two-mile-long prestressed concrete bridge across St. Louis Bay on the Gulf of Mexico still stands.

There is deep significance in this, in that Hurricane Camille, which struck the Gulf Coast Aug. 17, was labeled by the National Hurricane Center as the "greatest storm of any kind that has ever affected this nation." What's more, its eye, according to local witnesses, passed just east of the St. Louis Bay bridge, so that the structure caught the full fury of the storm. Estimates are that wave heights in the bay exceeded 30 feet. The hurricane, said an L&N spokesman, subjected the bridge to wind and wave action of a severity never before encountered on the Gulf Coast.

The St. Louis Bay bridge was, in fact, built in 1967 as an answer to the hurricane threat that plagues the Gulf Coast. Before its construction, L&N's single-track line that parallels the Gulf Coast for several hundreds of miles was carried across the bay on a timber-pile trestle. Counting September 1965 when the pile trestle was severely damaged by Hurricane Betsy, the bridge has been out of service nine times in 86 years. It was understandable, therefore, that the road, following Hurricane Betsy, said "That's it," and determined to replace the pile trestle with a bridge of a more permanent type.

The prestressed-concrete structure, built at a cost of nearly $5 million, was the result. It consists of 163 prestressed concrete box girders 60 feet long, spanning between bents containing either three or four hollow concrete piles, 4½ feet in diameter, topped by a concrete cap. Lengths of the piles vary from 68 feet to 120 feet.

The base of rail on the bridge was established at a height of 21 feet above the water level and 12 feet above that of the old wood trestle. This elevation was thought to place the deck out of reach of the waves generated by high winds produced during hurricanes. The track was built with concrete ties.



DECK OF L&N'S BRIDGE across St. Louis Bay was swept clean by hurricane and about 80 of the 163 spans were shifted out of position at their unanchored ends.

● **Designed for 100-year storm.** In designing the bridge, the engineers used wind and wave forces not expected to occur more than once every 100 years. A factor of safety of two was used, and it was figured that the dynamic forces and uplift resulting from the 100-year storm would be insufficient to overcome the deadweight of the spans.

Hurricane Camille did her best to prove the design engineers were wrong. She swept the deck clean of track and ballast (excepting on a swing span and two adjacent steel spans), and then tried to knock the spans off the bents. This failed but it is apparent that the uplift forces caused by the storm exceeded those used in the design of the bridge. Many spans showed evidence of having been lifted some 15 inches off the 2½-inch-diameter dowels used in constructing the fixed ends. The forces were not, however, sufficient to lift any of the 135-ton spans completely off the bents.

In some 80 of the 163 girders, the combined forces of the wind and waves caused the unanchored ends to shift horizontally on the caps from a minimum of an inch to a maximum, for one girder, of 7 feet, 8 inches. The shifting caused damage at some of the fixed ends in the form of cracking and spalling of the concrete at the anchor bolts and cap projections, and shifting of bearing pads between girders and caps.

● **Six girders replaced.** In the repair work the Prestressed Concrete Products Co., Mandeville, La., one of the prime contractors in constructing the bridge, brought floating derricks and rigs to assist L&N's bridge forces in replacing and realigning the damaged and shifted girders. Six girders of the same length as those in the bridge, which had previously been used as motor-car set-offs at intervals along the structure, were used to replace the same number of seriously damaged girders.

For replacing the track on the bridge, wood-tie track panels, constructed at the site and at another location, were used.

The job of realigning the spans and replacing the track on the bridge was completed on Friday, Aug. 29—just 12 days after the damage was done. ■

RSMA meeting tackles world-wide track problems

U.S., Canadian and European engineers trade ideas on current progress and likely developments in the future.

Problems of railway track have never been under more concentrated or widespread attack than they are today. As the attack proceeds, one effect is to underscore the complexities of the problem. Another is to reveal that the progress made so far has been mainly along the lines of defining the problem—with at least some of the final answers apparently years away.

These are some of the conclusions that may be drawn from the recent Railway Systems and Management Association conference on "The Dynamics and Economics of Railway Track Systems." The roster of speakers included top railway engineers from three foreign countries in addition to the U.S. and Canada, plus three researchers presently working on track projects. It was evidence that the intentions was to give maximum breadth and depth to an attack on track problems. Co-chairmen for the meeting were Arthur N. Butland, retired chief engineer-ways and works of the British Railways Board, and Joseph J. Schmidt, director of research services, planning department, Chesapeake & Ohio/Baltimore & Ohio.

● **Two-phase approach.** As the conference proceeded it became evident that, in attacking the track problem, engineers and researchers are working from two angles. One is to determine how to get better performance from conventional track as it is known today; the other is aimed at determining if fundamental changes, such as the use of concrete slabs or beams for support in the rails, is indicated.

Other points made are that:

—Problems with track today are at least partly attributable to a lack of communication between equipment designers and track engineers.

—There is a question whether maintenance of conventional track to the standards required for the projected speeds of passenger trains on some routes will be economically justifiable.

—The concrete tie has proved itself to be more economical than the wood tie in the long run in some foreign countries.

—There is a need for long-range planning to bring the future needs of the track structure into focus.

● **Brown was keynoter.** In the keynote address, R. M. Brown, Union Pacific's chief engineer, outlined the problems facing track men as a result of advances in equipment. The challenge, he said, is to develop the track structure to carry the new cars (running up to 90 feet in length, weighing as much as 150 tons and with centers of gravity up to 100 inches above the top of rail), at the speeds required today. Some of the results, he said, are wide gauge on tangents, accelerated development of defects in rails, and more broken joints. A machine is needed that will correct wide gauge on tangents, he said.

Tests on the Union Pacific have indicated, Brown said, that the lateral forces generated by cars run up to 15,000 pounds and that this force is doubled at 75 mph compared with 50 mph. Also, he said, there is a whipping action of cars when trains are drifting downgrade or under dynamic braking. And under some conditions cars tend to rock around their center of gravity.

Brown said that better standards of track maintenance are needed. Also, he said, there needs to be some redesign of frogs and switches, perhaps a change in rail chemistry, and improvement in methods of field welding rails.

● **Communication breakdown.** Dr. Lewis K. Sillcox, retired executive of New York Air Brake Co., was one of the speakers who mentioned the lack of communication in the railway industry. "The existing record," he said, "clearly displays the fact that present maintenance procedures and track roadbed have not kept pace with operating demands. The railway industry suffers from very poor communication or, at times, an entire lack of communication between departments. . . . The new long and high-center of-gravity freight-car types represent a classic example of non-communication, with a resultant serious impact on actual railway performance throughout the country."

This lack of communication and its results were also discussed in an address prepared jointly by two representatives of Canadian National: R. G. Maughan, assistant chief engineer-maintenance, and F. E. King, manager of the Technical Research Center at Montreal.

"In designing a track structure," they said, "a systematic approach is required which will consider both wheel and rail loads. The trend towards 'jumbo-sized' cars has resulted in many new problems to railway operators because the vehicle designers have not given sufficient consideration to the track structure on which they operate. Basic track design has evolved over a long period of time and has remained virtually unchanged on this continent for many years. However, because of higher speeds and higher wheel loads, along with reduced funds for maintenance and replacement, some changes appear desirable."

● **Will slabs do it?** Naming some of the changes they had in mind, Maughan and King gave consideration to the possibility of eliminating ties and laying the rails on slabs or concrete foundations. However, "it is difficult to imagine" this type of construction coming into general use except for very-high-speed passenger service. They see the continued use of concrete, steel and wood ties, but said that higher speeds will dictate closer control of gauge: "This will probably restrict the use of track spikes to secondary lines, with more positive fastening arrangements and concrete ties being employed on high-speed main lines."

Maughan and King also discussed the need for research on ballast and subgrade soils, progress in improving the quality of rail steel, and the development of a more uniform track modulus (stiffness).

"Assuming that ties and ballast will continue to form the key elements of the track structure," they said, "we must place greater emphasis on achieving and maintaining a higher quality and more permanent line and surface. Thus, in addition to present-day track-maintenance practices, we must implement widespread programs of the application of salt or other chemicals to reduce frost heaving, of rebuilding existing subgrades where necessary to improve their stability, and of compaction of crib and shoulder ballast."

TOP-DUTY TRACK on British railways consists of continuous butt-welded rails supported on prestressed concrete ties.

● **Hard to pin down.** The need for more permanent line and surface is the question uppermost in the minds of most track men and researchers working on track problems. And the speeds at which trains will operate have a direct bearing on the problem. So do many other factors, as was brought out in a discussion of what constitutes "optimum" track by George H. Way, research engineer-roadway, C&O/B&O.

"The nature of optimum track," he said, "will vary from place to place and time to time. This makes the search for it extremely complex. When tax rates or the prime interest rate changes, so does the optimum design and condition of the track. When the inflation rate changes, so does the optimum design of track. And its nature changes when wheel loadings increase in magnitude or frequency of speed. It changes also with labor rates and the development of new machines or materials or methods of maintenance. The exact mix of investment and the consequent expected level of maintenance expenditure and replacement cycles is a matter of delicate balance between the many factors which determine the balance. Changes in any of them shift the point of equilibrium."

The effect of train speeds on the problem was brought into sharper focus by William B. O'Sullivan, staff engineer, DOT's Office of High Speed Ground Transportation. His discussion was tied in with a forecast of the passenger-train speeds that would be necessary if efforts to recapture passenger business along such routes as the Northeast Corridor were to be successful.

"Trip time for rail service over distances of 200-300 miles," he said, "must *average* 100 mph minimally if people are to be drawn to it in sufficient numbers to afford relief to other increasingly congested transport arteries. Inescapably, this imperative emphasis on high speeds—not stopping at 100-mph-plus average speeds but eventually cruise speeds in the 150-200 mph range—forces a review of current guideway adequacy."

● **The price will be high.** In considering the track maintenance costs attendant on providing such service at acceptable levels of comfort and safety, O'Sullivan is "led inevitably to the suspicion that the cost of maintaining conventional railway track to the standards requisite for the support of passenger trains moving at speeds of 200 mph may overwhelm any revenue emanating from the service. Moreover, it is not at all clear that contemporary track designs will withstand other than isolated, research-type running at these velocities. Frequently repeated dynamic stressing of the rail-tie-ballast upgrade [formation] system at high speeds may very early introduce unacceptable track geometry variation. One may expect this to be compounded by the narrower allowable defect range of more rigorous tolerances."

With these considerations in mind, OHSGT requested proposals from "the engineering-consultive community" to undertake a theoretical inquiry into the problem. "The stated objective," said O'Sullivan, "was the generation of new ideas and designs for railroad track structures, which can either: (1) provide an inherently more stable ride for a train and/or (2) be more easily and economically installed or maintained in alignment than existing track structure designs."

● **Studies at Battelle.** A proposal from Battelle Memorial Institute for undertaking the inquiry was accepted. Howard C. Meacham, research fellow, Battelle's Mechanical Dynamics Division, appeared at the RSMA conference to explain the undertaking. In approaching the project, said Meacham, it was "not presumed that conventional track has reached the end of its usefulness. Rather, a study of 'advanced' track structures is made with the realization that within the near future there will be some applications where wheel-on-rail systems cannot be used unless a more stable track structure can be obtained."

In a "conceptual study" of the problem it was concluded, said Meacham, that "the intuitive thought of replacing the lateral ties in conventional track with a continuous slab or longitudinal beam-type becomes a design requirement if these stability criteria are to be met."

A series of computer-simulation programs was then made to study the response of conventional track structures and more advanced track structures incorporating longitudinal beams and slabs. The purpose was to arrive "at three or four designs of advanced track structures showing significant improvement over conventional track." The role of the rail fastener was also examined, said Meacham, "since this may well be the key element in determining the success of the stiffer track structures."

● **Next step: A field test.** Out of the theoretical studies came performance specifications for several advanced types of construction. The next step was to make field tests of these types. Plans are now far advanced to make the test installation on Santa Fe (RA, Sept. 9, 1968, p. 11). The types to be tested, according to O'Sullivan and Meacham, include cast-in-place twin beams, cast-in-place slabs, pre-cast twin beams, and precast slabs.

"Although the twin-beam type structure appears to be most efficient from a functional standpoint," Meacham said, "the requirement of lateral beams at intervals to maintain gauge complicates construction. A slab may actually be as cheap to install even though the volume of concrete is considerably more."

Along with the slab and twin-beam sections, the joint OGSGT-Santa Fe field test, as O'Sullivan explained it, will include tests of two types of concrete ties, two test sections of wood crossties (one of which will be for control purposes) and a section of track in which the ballast has been stabilized with a binder having elastomeric properties.

One of the wood-tie test sections, said O'Sullivan, will be built in accordance with Santa Fe standards. These include 136-pound continuous-welded rail (to be used throughout the test), 7-inch by 9-inch by 9-foot ties at a spacing of 19.5 inches, 7.75-inch by 14-inch tie plates and 10 inches of slag ballast beneath the ties.

The other wood-tie section, which O'Sullivan said is sometimes referred to as "super-conventional," will have 8-inch by 18-inch tie plates, ties spaced

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EUROPEANS HAVE ACCEPTED CONCRETE CROSSTIES

18 inches apart and 24 inches of ballast under the ties. This section is planned to be an example of the "ultimate in present-day railroad track construction," said O'Sullivan.

● **When testing starts.** Site of the Santa Fe test is Aikman, Kan., a point about 45 miles southwest of Emporia on the road's freight line between Emporia and Wellington. It is expected, O'Sullivan said, that embankment and drainage-facility construction will start this year and be completed before winter. The test track should be in service by the middle of 1970, he indicated.

"Although it is realized that the term of this experiment will be measured in years, OHSGT hopes that data trends will be identifiable within 2-3 years, and that early tentative performance conclusions may be reached," said O'Sullivan.

One of the two concrete ties to be tested at Aikman will be one of three now under observation in a test section on the C&O/B&O at Noble, Ill., according to O'Sullivan. In a detailed discussion of the reasoning behind the Noble test, George Way stated that an analysis made in 1966 "showed that the *total* cost per year of a structurally sound concrete-tie track compared favorably with, or was significantly lower than, the cost of wood-tie track in some specialized situations. Because we did not then or do not now expect a drastic change in price trends we felt justified in continuing the investigation and planning an actual installation to give us real numbers instead of the approximations which we were required to use in the 1966 study."

The result was the Noble test. The road is now engaged in a search for a second test site which, Way said, will include heavy curvature and grades, lower speeds, and higher tonnage.

Two methods are being used to measure the performance of the concrete ties in the C&O/B&O test, said Way. One is to make periodic runs with track-measurement cars to determine the deterioration of track geometry under traffic. The second is to measure the response of the test sections to individually applied loads.

● **They're accepted in Europe.** Concrete ties have long since passed beyond the test stage in at least several European countries, according to other speakers at the conference. For example, A. Paterson, chief civil engineer, British Railways Board, said that in that country standard top-duty track is composed of 113½-pound rail, long-welded to unlimited lengths, carried on 2,112 monolithic prestressed concrete ties per mile and resting on a minimum of 9 inches of effective stone ballast. The standard fasteners are spring clips, held by cast-in shoulders.

"The prestressed concrete tie," said Paterson," has usurped the timber tie for all our fastest and heaviest trafficked lines because of its physical advantages; weight to resist track distortion, uniformity in behavior, durability in service; while its projected life of 50 years —we see no reason against this—makes it economical indeed."

"In round figures," Paterson continued, "CWR/concrete-tie track costs about half as much as jointed timber-tie track: In terms of good running and safety, the improvement is indisputable."

In Germany, concrete ties, along with wood ties, are used in both first- and second-grade tracks, said Fritz Fastenrath, chief engineer, permanent way construction and maintenance of the Deutsche Bundesbahn (German Federal Railways). Reconditioned steel ties are also used in second-grade tracks. Concrete ties were used for the first time toward the end of World War II, he said, and the latest design is a prestressed concrete tie known as the B 58.

In tests conducted by the DB, Fastenrath said, "we did not lay the rails continuously on the slabs but have set them on single posts about 60 centimeters [about two feet] apart.

The use of concrete ties has become an established custom in Sweden, according to a paper co-authored by three representatives of the Swedish State Railways—Arne Carlstedt, director of the fixed installations department; Rune Enberg, chief engineer, maintenance and building; and Sven E. Schäder, chief engineer, superstructure. They described their practice this way:

"Today we have nearly 1.5 million concrete ties in our main tracks, as against 25 million wood ties, and our intention is to carry on to increase the number of concrete sleepers, as a track with concrete ties is superior to a track with wood ties, both technically and economically. Heavy concrete ties increase the stability of the track, which is important especially in the case of continuous welded rails. Based on laboratory tests we have reason to estimate a possible service life of 50 years at least for the concrete ties, a doubling compared with soft wood ties."

● **Upgrading cuts costs.** Another point brought out in the paper by the Swedish engineers is that a systematic program for upgrading the tracks has been carried out. This is now producing dividends in the form of lower maintenance costs. They said: "The downward trend of the costs during the '60s in spite of higher train speeds and heavier traffic density is a consequence of the higher track standard, but depends also on an increase in mechanization and systemization of the maintenance works."

Remarks made in the paper by Maughan and King comprised a fitting wrap-up of the thinking expressed at the conference.

"It appears," they said, "that we will have to continue to operate for some considerable time yet with our present plant, evolving to a more suitable structure over a period of time as the demand crystallizes and technical and financial resources permit. Under these conditions, targets for improvement must be set and steady progress made toward their achievement.

"To ensure such achievement, complete understanding of needs, resources and constraints is essential, and ultimate success will only be gained through a vigorous look into the future and a determined effort to develop and follow a rational long-term plan." ■

Track designers must be alert to future needs

"One thing seems clear: Long-lived steadily deteriorating equipment such as the permanent way must be renewed under a steady replacement plan backed by a reliable financial provision. While deferment in track renewals can be tolerated for a number of years without apparent effect, there is no escape from the maintenance debt built up, and in a relatively short time the essential and unavoidable renewals will exceed renewal capabilities, if not the financial ability to support them. Equally, with long-lived equipment there is a greater-than-ever need to design, not just for the known present but rather for the possible future, and here wisdom and good judgment, rather than technical expertise by itself, become more important if one is to avoid crippling the railway of tomorrow by underestimation or bankrupting the railway by lavish overprovision."

A. Paterson
Chief Civil Engineer
British Railways Board

Data systems need new strategy

Biaggini cites managers' role in address before AAR division.

Management must understand how to use the wealth of information generated by the totally integrated information networks called management-information systems. But how do you motivate a manager to use MIS? You show him how the system will make his job easier, or help him to do it better. But management must be dynamic and flexible—responsive to change—or it will not be making the best use of these systems, and they may become obsolete.

These, in brief, were major themes discussed at the fifth annual meeting of the AAR Data Systems Division in San Francisco.

● **Getting involved.** For the most rewarding use of the new management-information systems, management must be fully involved. The organization must be prepared to re-examine deeply and critically its traditional operating methods. "The manager must be able to communicate with computer specialists, which means that he must interpret company goals and work procedures to them. In turn, he must learn from these specialists about the kinds of information he can obtain from a computer," said the keynote speaker, B. F. Biaggini, president of the Southern Pacific.

"The computer expert's concern must be as much with people—learning from their experience and finding ways to meet their needs—as with the technical aspects of the machine operation. The information to be produced should be the result of many studies in the field to determine from the users the information they will require. In every case, careful attention must be given to the requirements of the using department through consultation, participation and involvement."

By management, Biaggini said, "I mean all individuals who are in a position to approve, determine, influence or supervise a given undertaking. This is not a static group of data-processing coordinators who review all projects, but an interdepartmental team specifically set up for a given project."

● **Total involvement.** The factors that make up total management involvement are: "First, we have an interdepartmental group. Second, we carefully select a senior member and make him responsible for the project. Third, we tell him that he must know enough about the details of the project so as to be held accountable for all policy decisions, strategies and results of the project. And fourth, if top management expects its people to spend time working on the development of new systems, it must provide the means to spread the workload so individuals are able to devote sufficient time to the project."

Biaggini also said that "getting involved means spending sufficient time and effort to know not only the objectives of the project, but also how those objectives will be met. This, I believe, can best be done by having upper management in a user-department responsible for the project. It seems to me that the best computer projects are managed by men experienced in the company's general operations as well as in computer systems, and who are knowledgeable about what is required to make the business profitable."

Designer's responsibility

Motivating management to use information systems is a necessary ingredient to their successful application. "Even though the inherent desire for better information is a quality resident in management, it is a responsibility of the system design technician, working closely with the manager, to help stimulate that desire. Computer technicians must provide the support in a way that makes use of new information technology meaningful and attractive," said R. D. Spence, vice president system operations, Southern Pacific.

● **Technician's role.** "The technician in meeting this responsibility must adhere to certain requirements if he is to successfully motivate management. The first is to make certain the system fulfills the user's needs. The second need is for maintaining a management perspective. The third requirement is to establish with management a rapport that permits free exchange of ideas to allow development evolution. If systems people want a manager's confidence, it must be made clear to him that they are a part of the team—here to stay—and with loyalty to his team.

"The systems designers must consider themselves as a business-oriented sales force which calls on computer users in the company and makes meaningful to them in business terms what computer systems can do for them in their particular jobs," Spence said.

"It is ironic that the very technology which demands increasingly sophisticated management to adequately direct it also tends to breed management obsolescence because of the rapid changes it fosters," said M. M. Christy, president of Western Pacific.

One way to combat such obsolescence is for managers to continue their education. On-the-job training is too slow, Christy said, and must be augmented by advanced formal education.

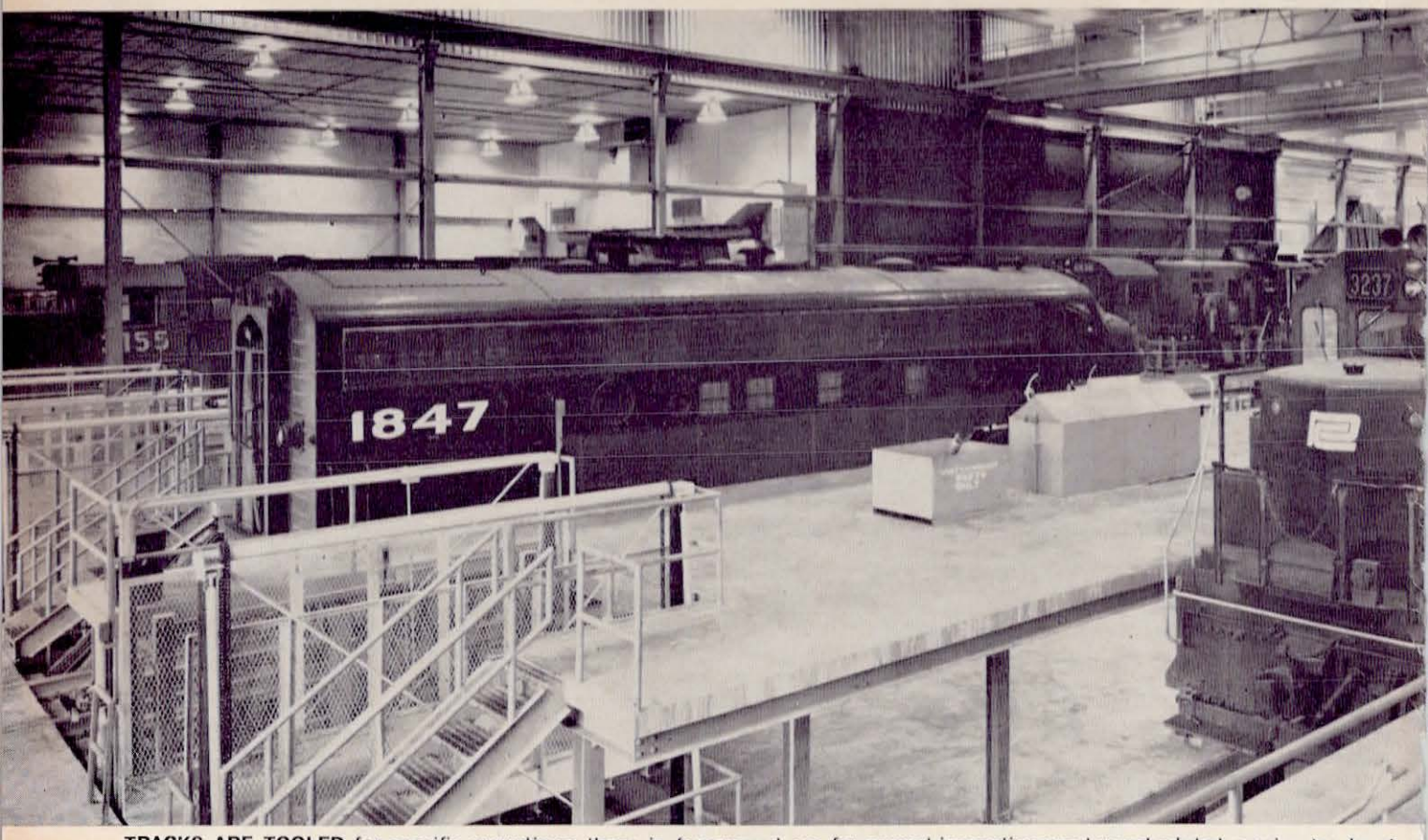
● **A questioning mind.** To minimize the individual obsolescence risk you should take "a questioning approach to your duties and the assumption you make. Another is the deliberate widening of horizons by seeking new and varied experiences, both on and off the job. We all need to take some time each day to break our routine and think about the value of what we are doing and how we are spending our time.

"Essential to the success of these individual preventive measures is the creation by the company of an organizational climate in which obsolescence finds it difficult to flourish. This means a system which permits, encourages and, hopefully, forces flexibility and adaptive innovation," Christy said.

"Each of us, as managers, bears the responsibility of helping create a climate for the development of individuals working with and for us . . . . We must provide continuing stimulus to individual desire for self-improvement. We should endeavor to use a person's capabilities to the fullest. Above all, our jobs should be designed to have meaning as related to the company's progress. Probably the most effective device in combating the threat of obsolescence is to provide the challenge of problem-solving, and the excitement generated by the purposeful pursuit of demanding goals.

"We must arrange for wide participation in the company planning and goal-setting process, encouraging the exercise of as much individual ingenuity and creativity as over-all goals will permit. This means downward delegation of decision-making wherever possible," Christy said.

"Only in a company climate of this nature can individuals mature to their fullest dimensions, thereby contributing the maximum to themselves, to the enterprise and ultimately to society as well. When we have approached this stage of organizational and managerial development, most of the problem of obsolescence will have been solved," Christy concluded. ■



TRACKS ARE TOOLED for specific operations; those in foreground are for annual inspections and unscheduled repairs; tracks at re

Selkirk: PC's "space age"

New $4 million diesel maintenance facility is at hub of road's eastern operations.

Penn Central President A. E. Perlman calls it "the most modern locomotive shop in existence" and credits application of "space age technology" for its layout and operating concepts. The newly opened $4-million maintenance and repair shop at Selkirk, N.Y., is a major supporting facility for Perlman yard which is assuming an increasingly pivotal role in the big road's eastern operations.

The recent formal opening of the new locomotive facility, says Perlman, "is the consummation of a 15-year plan for utilization of technology in railroading," initiated when he became president of the New York Central in 1954. Planning for Selkirk Shop has been proceeding for several years and was in its final stages when the Penn Central merger became effective in 1968. Construction began soon thereafter. The 3,700-car yard itself was already building at the time of the combination and was dedicated just a year prior to the opening of the new locomotive shop (RA, Sept. 30, 1968, p. 25).

● **Impressive statistics.** What PC has in its new shop, just southwest of Albany, is space for 28 units on seven tracks, two of which are tooled for one of the most elaborate "spot" maintenance lines ever established for locomotives. While the road's other "spot" lines have been fitted into existing shops, the Selkirk project gave the opportunity to design such a maintenance facility from the rail up.

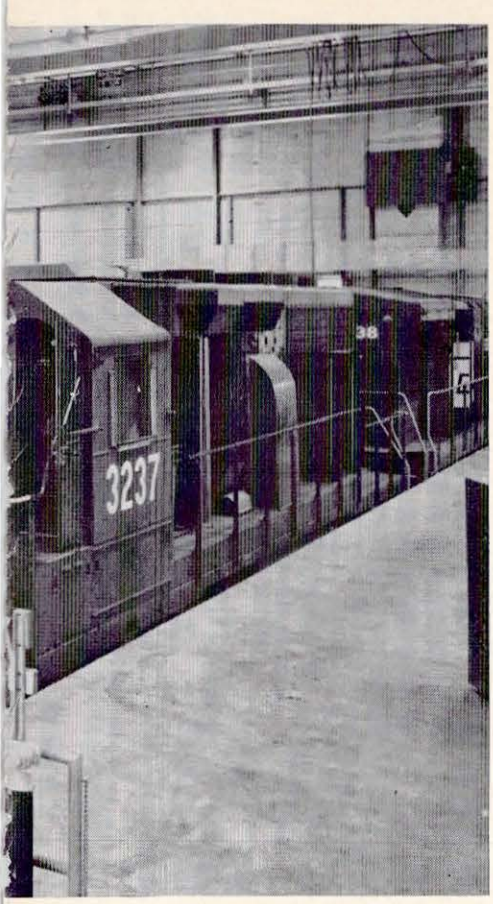
The adjacent outdoor servicing facility handles the multiple-unit road locomotives for more than 50 trains which are dispatched from Perlman Yard every 24 hours. More than 100 locomotives daily take on 100,000 gallons of fuel oil, 1,000 gallons of lubricating oil and 70 tons of sand. The "one stop" servicing station can handle up to five coupled units simultaneously on each of a pair of tracks. Turnaround inspections are also made while the locomotives are fueled and sanded.

The electronic yard has eliminated eight obsolete switching facilities. It classifies 2,700 cars daily and, counting cars requiring no classification, dispatches about 3,500 cars every 24 hours. The yard is the major classification point for PC freight moving between inland America, New England and the New York City metropolitan area.

● **Consolidates operations.** Just as the yard concentrates at one point switching which formerly was handled at a number of facilities, Selkirk shop also represents a consolidation of locomotive maintenance and inspection operations.

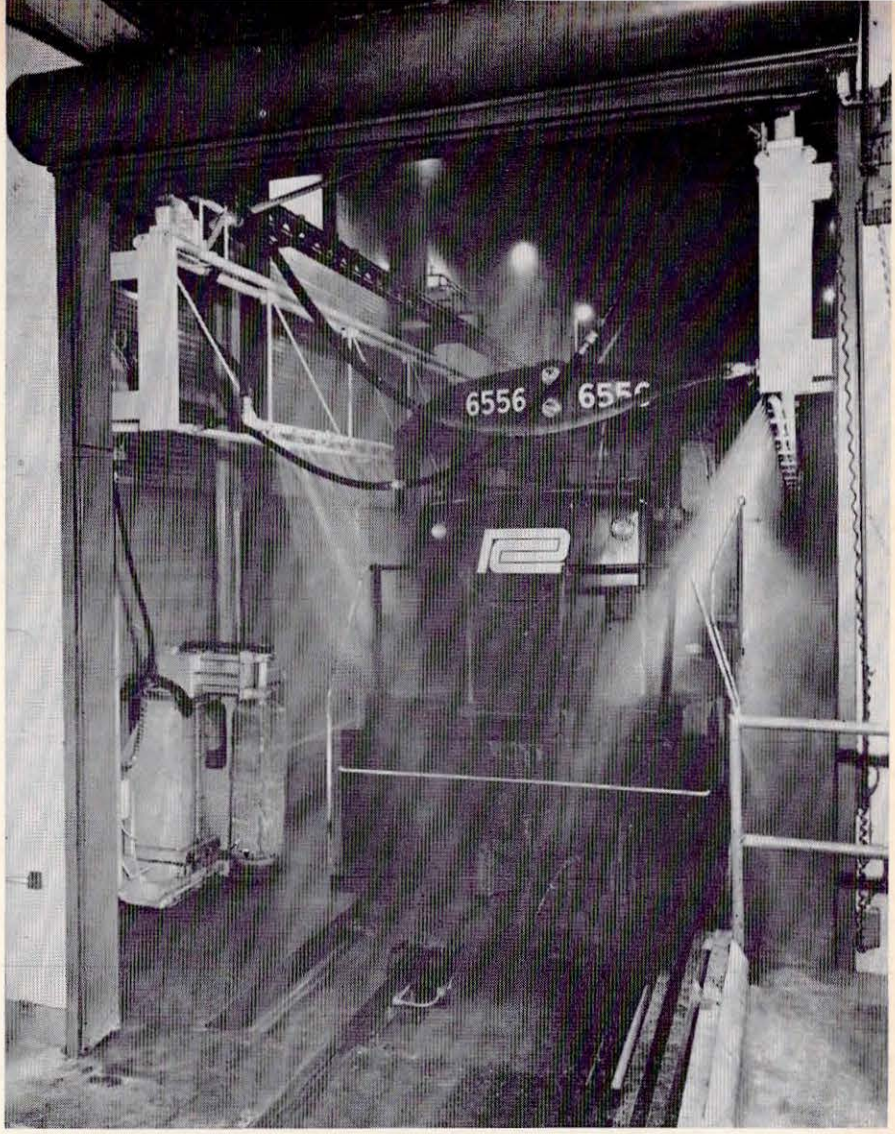
Up to 700 road units are being assigned there, some previously handled at points as remote as Chicago. By the very nature of PC's motive power pools, the majority of Selkirk's locomotives are the high-horsepower, four-motor units used on the former NYC main line.

Every month each of the 700 units



constitute progressive maintenance line.

shop



SPOT 3 on progressive line has semi-automatic washing in special enclosure. Powered brush on monorail first scrubs carbody and then spray system rinses it.

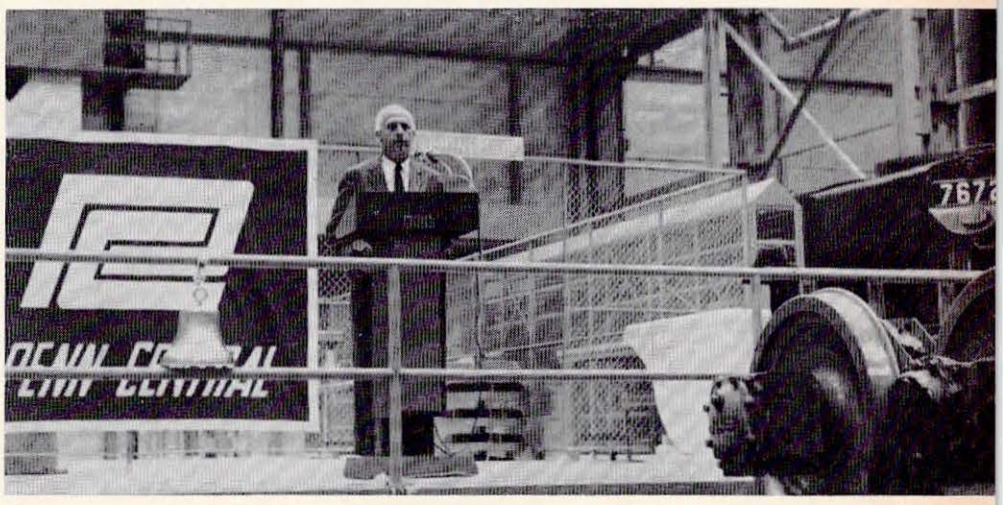
will be brought into the shop. This scheduling will be handled by a computer and PC's Power Control Bureau in Philadelphia. The system operates to assure that each unit will be routed into the shop on the day it is scheduled. Each unit's arrival is accompanied by a computer print-out showing the seven most recent maintenance problems and the dates when these defects were reported. As a locomotive enters the shop, inspectors give these defect areas special attention.

Industrial engineering has had an important role in allocating the space and manpower for the various operations in the 69-500-square-foot shop. The seven shop tracks are equipped and utilized as follows:

—Tracks 1 and 2: Major repairs requiring over 24 hours which include diesel engine work at bi-level areas, and truck, wheelset or traction motor replacements on twin drop tables;

—Track 3: Repairs requiring 13 to 24 hours including the restoration of collision damage and carbody work;

—Tracks 4 and 5: Assigned for the semi-annual and annual testing re-



"We are proud of this shop. It is the consummation of a 15-year program to utilize technology in railroading."

. . . PC President A. E. Perlman

FRANK MALONE

WATCHING WASHINGTON

THE TRUCK TRAINS ARE COMING, the truck trains are coming? That depends on what you mean by truck train. The three-trailer train? Absolutely not. The two-trailer type? They're here already, but there should be more. Who says? American Trucking Associations, in a "white paper" colored to support the ATA bill for bigger truck sizes and weights (RA, July 14, p. 8). The bill contains a Federal length-limit of 70 feet (tractor included). There is no Federal length restriction now. State limits vary from 40 to 75 feet. In a kind of tradeoff, the ATA paper says the 70-foot limit would help standardize and improve double-bottom operations, while it would "for all practical purposes, prevent further state authorization of triple trailers." (Seven states already allow triple-bottoms, with tight restrictions.)

THREE TRAILERS 20 FEET LONG wouldn't be practical. But two trailers 30 feet long is a whole new truck game, ATA says. The proposed 70 feet is five feet more than the prevailing length in the 33 states where double bottoms can run. That means room for more cargo. The ATA paper, however, cites a different advantage. The extra length is called "essential to a transportation system coordinating the movement of freight by rail, ship, air and highway." The 70-foot length would enable truck lines to move two 30-foot container-trailers, "a container length already proved practical and efficient." The Federal Highway Administration, ATA adds, has said the length increase would promote standardized containerization of freight shipments.

SAFETY IS PROMOTED, TOO, the paper says. Tests by the Bureau of Public Roads prove that 65-foot twin-trailer units, for example, are more maneuverable and require three feet less for a right-angle turn than shorter, one-trailer units. The FHWA has testified that double bottoms have an "outstanding" safety record and do not constitute a highway hazard. The paper quotes FHWA Administrator Turner as saying the 70-foot unit "should" take interchange ramps "without much difficulty."

THE 70-FOOT LIMIT WAS ADDED for the 91st Congress, the ATA white paper says, "to stop charges that the legislation would permit triple-trailer truck trains." Without that limit, the ATA bill moved successfully through the Senate in the 90th Congress, but it died in the House. So far in the 91st, the bill has had three days of House hearings (July)—and nothing else.

quired by the Federal Administration and requiring 8 to 12 hours at bi-level work areas;

—Tracks 6 and 7: Monthly and quarterly FRA tests combined with monthly preventive maintenance on highly mechanized, five-station line through which units are progressed by "rabbit" moving systems.

● **Every unit through line.** The normal procedure is to process every unit entering the shop along either Track 6 or Track 7, setting it back on another track afterwards if additional scheduled or unscheduled work is necessary. Two strings of locomotives are moved alternately along a central work area between Tracks 6 and 7 so that the 25 men assigned to the line always have units awaiting them. Each unit spends a total of 2 hours at each position with 40 minutes of this allowed for moving the line.

All the materials and tools are between the two tracks on the elevated platforms and in the depressed work areas beneath.

Inbound locomotives are picked up by the moving system outside the shop. At this location the generators and motors are blown clean. Once inside, at Spot 1 there is a "hot inspection" by machinists and electricians while the engine continues to run. The diesel is then shut down.

At Station 2 each unit is lubricated and has all its filters changed. There are hose reels for dispensing oil and grease, gasket boards and filter racks for new parts, and a conveyor system for removing used filters from the shop.

Spot 3, the washing site, is entirely enclosed with roll-up doors at entrances and exits, and a separate exhaust system.

Whiting has developed a completely new locomotive washing system for the shop. A monorail-mounted brush washer traverses a loop around the locomotive, applying cleaning solution and scrubbing the carbody as it goes. Because this brush is supported and driven only at the top, the operator who rides its cab can even clean road-switcher hoods behind the handrails. Once the brush washer has completed its cycle and retracted, the spray loop which applies a high-pressure rinse descends over the carbody to flush away all traces of the cleaning solution. High-pressure trackside sprays are actuated at the entrance to the washing bays to clean locomotive running gear and underframes.

Spot 4 sees additional electrical inspections, along with adjustments and repairs required during the monthly inspection.

At Spot 5 the final tests are made and the unit is normally then ready for return to road service. ■

Second Quarter and Six Months' Figures of Calendar Year 1969

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railways tax accruals	Net Railway operating income	
							Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	Total (inc. misc.) 1969	Total (inc. misc.) 1968	Total 1969	Total 1968	Deprec. and Retirements	Total 1969	Total 1968	Deprec. and Retirements	Traffic	Transportation	Total 1969	Total 1968	1969	1968				
Akron, Canton & Youngston	3 mos.	171	2,066	—	2,130	2,046	272	298	17	334	365	128	119	745	1,594	1,589	74.9	77.7	535	281	301	301
	6 mos.	171	3,822	—	3,959	4,052	529	530	38	688	766	257	235	1,394	3,088	3,157	78.0	77.9	871	486	530	620
Ann Arbor	3 mos.	293	2,337	—	2,394	2,149	433	212	21	524	441	139	69	1,340	2,436	1,906	101.8	88.7	—43	197	—451	—164
	6 mos.	293	4,724	—	4,814	4,426	649	446	49	886	884	278	138	2,493	4,304	3,853	89.4	87.1	510	382	—305	—186
Atchison, Topeka & Santa Fe	3 mos.	12,883	162,721	6,288	180,364	165,638	26,104	28,695	2,503	33,910	33,834	10,643	4,853	67,170	140,451	138,238	77.9	83.5	39,913	18,725	18,786	11,424
	6 mos.	12,883	320,552	10,609	354,095	329,558	49,980	52,246	4,913	68,575	70,462	21,671	9,443	131,801	276,501	273,129	78.1	82.9	77,594	36,186	36,692	23,470
Baltimore & Ohio	3 mos.	5,606	117,253	934	124,198	118,220	16,887	15,102	1,938	18,319	16,505	2,563	2,812	44,844	89,788	83,483	72.3	70.6	34,410	8,097	12,702	11,446
	6 mos.	5,640	217,761	1,711	230,269	219,322	28,500	26,500	3,401	37,471	33,430	5,234	5,901	86,622	172,006	162,419	74.7	74.0	58,263	16,012	16,087	11,435
Bangor & Aroostook	3 mos.	543	3,668	68	3,818	3,968	963	921	68	1,098	1,056	410	82	1,091	3,465	3,411	90.8	86.0	353	304	803	982
	6 mos.	543	7,306	131	7,588	7,637	1,810	1,747	136	2,202	2,172	821	171	2,347	7,006	6,998	92.3	91.6	582	606	1,120	1,136
Bessemer & Lake Erie	3 mos.	221	9,655	—	10,404	11,462	1,200	933	127	1,591	1,134	548	159	2,541	6,143	5,236	59.0	45.7	4,261	2,561	2,146	2,609
	6 mos.	221	14,889	—	15,908	17,528	2,024	1,816	256	2,990	2,323	740	307	4,298	10,926	9,981	68.7	56.9	4,982	3,396	3,014	3,261
Boston & Maine	3 mos.	1,531	15,459	1,213	18,227	17,391	2,530	2,152	425	2,889	2,616	641	371	7,946	14,688	13,566	80.6	78.0	3,539	1,290	252	80[illegible]
	6 mos.	1,531	29,761	2,474	35,189	33,282	5,148	4,391	840	5,674	5,268	1,286	739	16,047	29,502	27,433	83.8	82.4	5,688	2,617	—1,297	—440
CPR Lines in Maine	3 mos.	234	2,064	67	2,188	1,707	279	247	61	253	226	47	45	567	1,282	1,124	58.6	65.9	906	78	456	231
	6 mos.	234	4,781	102	4,979	3,610	627	574	123	593	534	93	91	1,193	2,772	2,481	55.7	68.7	2,208	159	1,224	387
Central of Georgia	3 mos.	1,729	13,438	189	14,012	12,986	2,800	2,719	179	2,430	2,600	750	317	4,699	12,179	11,069	86.9	85.2	1,833	1,623	—765	1,029
	6 mos.	1,729	26,357	413	27,520	25,349	6,287	5,137	386	4,870	5,252	1,504	605	9,596	24,162	22,067	87.8	87.1	3,357	1,775	—172	1,260
Central RR of New Jersey	3 mos.	593	10,778	977	13,528	13,627	1,487	1,511	254	2,057	2,194	356	292	6,648	11,352	11,289	83.9	82.8	2,176	1,159	—1,128	—684
	6 mos.	593	20,243	1,918	25,648	25,660	2,960	2,974	524	4,246	4,336	751	601	12,807	22,341	22,487	87.1	87.6	3,308	2,270	—2,847	—2,535
Central Vermont	3 mos.	382	2,326	—	2,386	2,155	414	472	55	183	212	12	29	844	1,636	1,916	68.5	88.9	750	122	—42	—221
	6 mos.	382	4,514	—	4,643	4,102	866	937	110	495	532	25	61	1,748	3,513	3,670	75.7	89.5	1,130	323	—179	—483
Chesapeake & Ohio	3 mos.	5,106	102,219	652	108,189	103,940	12,211	11,900	1,591	19,863	20,089	6,283	2,712	41,378	82,145	80,777	75.9	77.7	26,044	11,070	12,030	11,934
	6 mos.	5,106	192,769	1,077	202,484	196,808	23,000	22,100	3,086	39,822	39,358	12,470	5,478	80,712	160,740	156,964	79.4	79.8	41,745	19,299	17,892	21,[illegible]05
Chicago & Eastern Illinois	3 mos.	643	11,307	16	11,910	12,370	2,300	2,219	135	1,918	2,000	496	370	3,927	9,085	9,915	76.3	80.1	2,825	463	361	8
	6 mos.	886	23,027	39	24,356	23,618	4,650	3,717	386	4,155	4,433	1,059	774	8,303	18,957	19,270	77.8	81.6	5,399	1,023	428	—474
Chicago & Illinois Midland	3 mos.	121	891	—	926	1,315	127	100	21	224	199	36	6	317	782	765	84.4	58.2	145	137	—19	202
	6 mos.	121	2,193	—	2,263	2,551	217	219	42	450	406	71	13	658	1,562	1,583	69.0	62.1	701	493	177	331
Chicago & North Western	3 mos.	11,544	62,389	5,381	70,811	68,954	10,404	10,810	1,391	12,273	11,790	4,170	2,257	30,572	60,606	58,420	85.6	84.7	10,205	5,997	—2,572	—[illegible]8
	6 mos.	11,544	120,000	10,449	136,279	136,067	20,823	19,875	3,007	25,810	23,681	8,393	4,574	60,944	122,382	115,075	89.8	84.6	13,897	11,840	—11,280	866
Chicago, Burlington & Quincy	3 mos.	8,458	63,684	4,197	73,160	67,874	10,310	9,310	1,343	13,177	12,084	4,247	2,197	29,670	59,542	55,973	81.4	82.5	13,618	6,068	4,285	4,119
	6 mos.	8,458	126,270	7,653	144,502	134,819	19,324	17,998	2,596	26,371	24,843	8,581	4,352	59,840	118,138	111,425	81.8	82.7	26,364	12,086	7,668	7,805
Chic., Milw., St. Paul & Pacific	3 mos.	10,480	60,046	2,583	67,239	67,056	11,849	9,178	1,378	10,930	10,713	3,252	1,913	28,422	57,398	53,108	85.4	79.2	9,841	6,176	—1,950	4,052
	6 mos.	10,496	118,023	5,014	132,431	131,553	21,356	16,915	2,746	23,176	21,057	6,546	3,898	57,887	114,992	105,404	86.8	80.1	17,439	12,262	—5,731	6,264
Chicago, Rock Island & Pacific	3 mos.	7,257	62,080	1,463	66,277	61,128	10,753	8,920	1,413	10,472	9,786	1,799	1,826	28,267	54,553	48,530	82.3	79.4	11,725	4,853	—2,186	—639
	6 mos.	7,267	119,566	2,893	127,949	119,703	20,112	16,786	2,842	21,556	20,020	3,698	3,666	55,093	107,045	96,769	83.7	80.8	20,904	9,637	—6,218	—2,158
Clinchfield	3 mos.	306	8,257	17	8,337	7,502	839	867	73	1,252	1,280	616	243	2,176	4,789	4,673	57.4	62.3	3,548	763	2,953	2,327
	6 mos.	306	16,420	17	16,552	15,108	1,665	1,655	145	2,470	2,442	1,222	501	4,351	9,541	9,295	57.6	61.5	7,011	1,519	5,614	4,666
Colorado & Southern	3 mos.	692	4,411	—	4,511	4,072	529	421	40	675	657	305	71	1,428	2,973	2,644	65.9	64.9	1,538	529	883	796
	6 mos.	703	8,199	—	8,392	7,832	939	794	77	1,337	1,378	610	141	2,784	5,752	5,248	68.6	67.0	2,640	909	1,443	1,542
Ft. Worth & Denver	3 mos.	1,280	4,510	—	4,652	4,446	619	618	86	496	600	114	185	1,851	3,431	3,644	73.8	82.0	1,221	133	727	—135
	6 mos.	1,280	8,301	—	8,649	10,050	1,316	1,239	184	1,051	1,193	228	376	3,680	7,075	7,330	81.8	72.9	1,575	416	312	776
Delaware & Hudson	3 mos.	734	11,642	153	12,099	10,805	1,397	1,717	112	2,107	2,290	387	355	4,037	8,637	9,145	71.4	84.6	3,461	1,319	1,973	501
	6 mos.	734	22,297	332	23,243	21,081	2,578	2,918	224	3,942	4,471	775	699	8,233	16,991	17,397	73.1	82.5	6,253	2,611	3,267	1,362
Denver & Rio Grande Western	3 mos.	2,145	23,575	436	24,520	23,008	2,844	2,816	437	3,634	3,477	1,363	898	7,931	16,735	15,892	68.3	69.1	7,785	3,988	3,581	3,586
	6 mos.	2,145	46,517	711	48,068	44,855	4,994	5,014	811	7,473	7,101	2,698	1,780	15,794	32,923	31,260	68.5	69.7	15,145	7,711	7,006	6,950
Detroit & Toledo Shore Line	3 mos.	50	1,699	—	1,837	1,748	214	130	31	262	248	113	70	641	1,302	1,190	70.9	68.1	535	225	218	97
	6 mos.	50	3,438	—	3,704	3,449	412	281	45	546	509	224	135	1,298	2,615	2,370	70.6	68.7	1,089	421	394	234
Detroit, Toledo & Ironton	3 mos.	467	7,491	—	7,793	7,215	667	592	86	1,586	1,285	628	236	2,769	5,717	4,940	73.4	68.5	2,076	632	707	1,082
	6 mos.	467	15,469	—	16,144	15,012	1,271	1,187	172	2,722	2,838	1,269	458	5,439	10,769	10,328	66.7	68.8	5,376	1,189	2,721	2,285
Duluth, Missabe & Iron Range	3 mos.	509	12,038	—	13,186	11,690	1,193	1,846	227	1,572	1,319	548	52	2,814	6,513	6,850	49.4	58.6	6,673	4,487	2,401	2,068
	6 mos.	512	15,563	—	16,838	14,587	2,364	2,973	433	3,032	2,636	1,093	105	4,648	11,845	11,748	70.3	80.5	4,994	4,060	1,391	1,098

(Continued on next page)

Second Quarter and Six Months' Figures of Calendar Year 1969

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1969	1968	Operating Expenses: Maint. Way and Structures: Total 1969	Total 1968	Deprec. and Retirements	Maint. Equipment: Total 1969	Total 1968	Deprec. and Retirements	Traffic	Transportation	Total 1969	Total 1968	Operating ratio 1969	1968	Net from railway operation	Railways tax accruals	Net Railway operating income 1969	1968
Duluth, Winnipeg & Pacific	3 mos.	170	2,299	—	2,340	2,208	325	281	16	200	189	2	45	807	1,438	1,339	61.5	60.6	902	419	152	193
	6 mos.	170	4,443	—	4,509	4,906	619	503	32	395	406	5	89	1,595	2,821	2,662	62.6	54.3	1,688	916	114	729
Elgin, Joliet & Eastern	3 mos.	205	9,848	—	15,579	15,375	1,676	1,549	106	2,213	2,452	544	189	5,919	11,541	11,127	74.1	72.4	4,038	2,282	664	789
	6 mos.	205	19,452	—	30,164	29,862	3,010	2,674	205	4,737	5,001	1,059	363	11,694	22,851	21,605	75.8	72.3	7,313	4,019	1,344	1,776
Erie Lackawanna	3 mos.	2,884	57,624	2,853	66,162	61,702	8,187	6,880	775	10,144	9,537	1,829	1,358	28,799	51,417	47,234	77.7	76.6	14,744	4,877	4,465	4,260
	6 mos.	2,894	110,425	5,689	126,597	119,637	13,981	13,066	1,594	19,894	20,755	3,671	2,661	55,528	97,682	97,549	77.2	81.5	28,915	9,706	8,695	1,176
Florida East Coast	3 mos.	571	7,650	—	7,807	6,340	2,236	1,627	192	948	809	271	199	2,022	5,852	4,701	75.0	74.1	1,956	787	155	86
	6 mos.	571	15,868	—	16,176	13,023	4,921	3,073	427	2,213	2,100	561	399	4,141	12,589	9,658	77.8	74.2	3,568	1,548	48	170
Georgia Railroad	3 mos.	331	2,387	13	2,513	2,631	389	356	37	445	427	106	134	871	1,969	2,038	79.1	77.5	524	151	200	246
	6 mos.	331	4,656	17	4,936	4,898	753	716	74	825	844	205	275	1,743	3,898	4,019	79.0	82.0	1,038	305	419	224
Grand Trunk Western	3 mos.	946	17,556	523	19,299	18,518	2,393	2,004	183	2,842	2,408	195	477	9,849	16,741	14,304	86.7	77.2	2,557	1,747	—3,676	—1,032
	6 mos.	946	35,134	1,007	38,517	35,840	4,372	3,758	366	5,342	4,944	391	891	19,596	32,467	28,246	84.3	76.8	6,049	3,464	—6,493	—2,211
Great Northern	3 mos.	8,275	66,072	2,337	72,439	64,700	11,931	10,335	1,321	12,075	11,326	3,483	2,032	28,332	58,887	53,448	81.3	82.6	13,551	7,143	5,987	4,483
	6 mos.	8,275	125,062	3,925	136,524	125,826	22,235	18,742	2,386	24,196	22,244	7,084	4,022	56,389	116,086	104,507	85.0	83.1	20,438	13,890	5,774	7,648
Gulf, Mobile & Ohio	3 mos.	2,734	23,467	469	25,198	24,485	3,393	3,109	320	4,711	4,437	1,377	888	8,433	18,511	17,543	73.5	71.6	6,687	2,430	2,708	2,902
	6 mos.	2,734	46,229	896	49,690	48,196	6,614	6,064	591	9,623	8,971	2,737	1,807	16,792	37,001	34,949	74.5	72.5	12,679	4,637	5,289	5,581
Illinois Central	3 mos.	6,786	68,178	5,115	77,297	77,734	10,469	9,818	1,352	13,000	13,918	4,104	2,070	29,690	60,420	60,155	78.2	77.4	16,876	7,926	5,525	5,984
	6 mos.	6,786	136,432	10,733	154,853	151,907	19,909	19,691	3,029	26,075	27,380	8,215	4,348	60,068	120,799	120,947	78.0	79.6	34,054	15,867	11,215	8,200
Illinois Terminal	3 mos.	340	2,334	—	2,616	2,390	297	309	11	580	491	110	69	1,111	2,248	2,037	85.9	85.3	369	203	—165	—189
	6 mos.	340	4,529	—	5,067	4,775	576	627	22	981	948	220	135	2,112	4,188	4,102	82.7	85.9	879	409	—131	—390
Kansas City Southern	3 mos.	1,684	19,336	148	20,900	19,681	2,596	2,416	241	3,237	2,931	1,207	768	6,747	14,277	13,523	68.3	68.7	6,623	2,100	2,609	2,308
	6 mos.	1,684	37,936	272	40,703	39,457	4,688	4,536	479	6,402	6,206	2,411	1,538	13,417	27,877	27,220	68.5	69.0	12,826	4,138	5,367	4,975
Kansas, Oklahoma & Gulf	3 mos.	205	1,273	—	1,273	1,168	137	181	16	267	328	183	85	326	873	1,016	68.5	87.0	401	144	675	377
	6 mos.	207	2,539	—	2,540	2,560	285	303	25	546	682	366	172	613	1,732	1,995	68.2	77.9	808	274	1,331	1,099
Lake Superior & Ishpeming	3 mos.	130	1,812	—	2,194	2,712	248	308	68	342	369	187	9	506	1,197	1,334	54.6	49.2	997	179	848	1,136
	6 mos.	130	1,943	—	2,409	2,944	509	566	136	706	721	378	21	821	2,244	2,345	93.1	79.6	166	334	—75	237
Lehigh Valley	3 mos.	942	12,110	—	12,525	11,791	1,385	1,419	249	1,538	1,771	334	422	5,966	10,072	10,133	80.4	85.9	2,453	971	—659	—939
	6 mos.	945	23,332	—	24,264	23,134	2,877	2,864	507	3,234	3,369	645	817	12,044	20,494	20,346	84.5	88.0	3,769	1,970	—2,234	—2,427
Long Island	3 mos.	322	2,410	19,333	22,625	22,580	2,774	2,249	300	5,681	4,958	592	211	13,369	23,621	20,863	104.4	92.4	—996	1,498	—3,611	—653
	6 mos.	322	4,582	37,380	43,703	43,430	5,633	4,868	563	11,140	10,073	1,197	450	26,437	46,669	42,186	106.8	97.1	—2,966	3,068	—8,290	—3,478
Louisiana & Arkansas	3 mos.												Included in Kansas City Southern									
	6 mos.												Included in Kansas City Southern									
Louisville & Nashville	3 mos.	6,065	79,970	441	83,213	77,100	11,330	10,789	1,293	16,281	15,672	6,362	1,983	30,094	64,272	60,329	77.2	78.2	18,941	7,156	10,912	9,326
	6 mos.	5,886	155,524	799	161,776	150,593	22,204	20,385	2,502	33,157	31,475	12,701	3,974	58,844	127,507	120,288	78.8	79.9	34,269	13,423	19,300	15,935
Maine Central	3 mos.	921	6,421	—	6,541	6,074	1,180	993	87	1,318	1,235	291	126	2,401	5,427	4,857	83.0	80.0	1,114	458	347	500
	6 mos.	921	12884	—	13,125	12,289	2,692	2,068	174	2,662	2,466	583	254	4,862	11,261	9,869	85.8	80.3	1,864	917	332	943
Missouri Illinois	3 mos.	422	1,751	—	1,781	1,793	262	279	11	633	527	351	22	373	1,360	1,275	76.4	71.1	421	307	1,058	1,105
	6 mos.	433	3,372	—	3,421	3,559	463	395	44	1,239	1,102	702	45	742	2,628	2,435	76.8	68.4	793	595	2,075	2,234
Missouri-Kansas-Texas	3 mos.	2,772	16,741	—	17,292	16,572	2,784	2,301	307	2,103	2,078	455	930	6,455	13,152	11,955	76.1	72.1	4,140	1,323	—16	234
	6 mos.	2,781	31,583	—	32,697	33,094	4,853	4,517	576	4,090	4,024	914	1,729	12,389	24,747	23,523	75.7	71.1	7,950	2,628	16	953
Missouri Pacific	3 mos.	8,940	82,764	450	87,903	82,949	14,676	12,551	1,618	14,314	13,122	3,618	2,084	30,339	65,465	60,647	74.5	73.1	22,437	6,362	7,195	7,860
	6 mos.	8,959	162,866	843	173,141	160,990	27,450	23,646	2,883	28,164	25,945	6,984	4,144	59,874	127,882	118,046	73.9	73.3	45,259	13,139	15,187	14,962
Monon	3 mos.	540	5,814	—	6,085	5,145	903	689	60	925	837	242	256	2,090	4,571	4,048	75.1	78.7	1,514	427	340	297
	6 mos.	540	11,200	—	11,691	10,253	1,584	1,251	119	1,686	1,636	474	506	4,159	8,724	7,905	74.6	77.1	2,967	847	756	710
Monongahela	3 mos.	193	1,393	—	1,403	1,483	282	475	32	250	186	34	3	443	1,024	1,223	73.0	82.5	379	84	—25	—87
	6 mos.	193	2,715	—	2,735	3,150	612	716	67	460	344	68	7	870	2,040	2,124	74.6	67.4	696	168	—89	107
New York, New Haven & Hartford	3 mos.		Included in Penn Central Co.																			
	6 mos.		" " " " "																			
Norfolk & Western	3 mos.	7,585	169,744	465	177,185	163,540	18,895	16,904	2,626	27,926	25,769	11,585	3,683	60,304	118,758	111,433	67.0	68.1	58,427	20,483	30,758	27,729
	6 mos.	7,585	323,826	890	337,239	318,305	33,906	31,576	4,999	54,406	50,535	22,997	7,284	119,512	230,553	219,582	68.4	69.0	106,687	36,436	55,992	52,334
Norfolk Southern	3 mos.	624	3,103	—	3,153	2,682	632	493	74	465	422	172	162	1,008	2,578	2,162	81.8	80.6	575	226	97	107
	6 mos.	624	6,036	—	6,134	5,421	1,171	917	148	957	845	355	321	1,952	4,983	4,263	81.2	78.6	1,151	464	261	347

(Continued on page 30)

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Second Quarter and Six Months' Figures of Calendar Year 1969

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

REVENUES AND EXPENSES OF RAILWAYS

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railways tax accruals	Net Railway operating income	
					Total (inc. misc.)		Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	1969	1968	Total 1969	Total 1968	Deprec. and Retirements	Total 1969	Total 1968	Deprec. and Retirements	Traffic	Transportation	Total 1969	Total 1968	1969	1968				
Northern Pacific	3 mos.	6,772	49,821	1,330	53,346	50,927	8,551	8,604	1,127	10,829	9,487	3,289	1,769	22,167	47,543	44,079	89.1	86.6	5,803	5,425	1,707	2,611
	6 mos.	6,772	96,915	2,228	103,372	98,247	15,894	14,752	2,156	21,617	18,996	6,573	3,464	45,212	94,669	86,196	91.6	87.7	8,703	10,734	874	3,516
Northwestern Pacific	3 mos.	324	2,930	6	2,949	2,907	609	609	93	120	116	3	27	934	1,780	1,818	60.4	62.5	1,169	223	398	329
	6 mos.	324	5,543	7	5,575	5,306	1,506	1,113	157	262	215	7	47	1,765	3,769	3,280	67.6	61.8	1,807	471	196	503
Penn Central	3 mos.	20,530	340,069	36,786	417,950	423,136	47,722	46,813	7,262	72,311	68,652	16,066	5,695	196,147	349,198	343,243	83.6	81.1	68,751	27,876	—7,492	1,722
	6 mos.	20,530	671,602	72,417	823,902	835,042	91,379	91,740	14,686	137,816	139,708	32,048	12,041	393,000	688,095	689,944	83.5	82.6	135,807	57,556	—17,586	—8,062
Penn-Reading Seashore Lines	3 mos.	322	1,956	29	2,169	1,946	448	443	39	359	366	57	15	1,397	2,332	2,291	107.5	117.7	—163	159	—787	—995
	6 mos.	322	3,847	47	4,258	3,920	854	868	94	709	754	123	30	2,743	4,562	4,581	107.1	116.9	—304	333	—1,681	—1,952
Piedmont & Northern	3 mos.	150	1,745	—	1,806	1,624	153	166	29	148	122	31	112	427	1,016	929	56.2	57.2	791	379	231	211
	6 mos.	150	3,487	—	3,599	3,302	310	320	55	286	239	61	227	823	1,985	1,842	55.1	55.8	1,614	786	463	455
Pittsburgh & Lake Erie	3 mos.	209	9,589	15	10,240	9,529	1,015	888	129	3,257	3,364	1,421	196	3,434	8,528	8,508	83.3	89.3	1,712	3,074	3,109	3,338
	6 mos.	209	17,471	31	18,729	17,970	1,977	1,865	286	6,149	5,853	2,860	395	6,918	16,734	16,304	89.4	90.7	1,995	5,445	5,646	6,134
Reading	3 mos.	1,228	23,972	1,894	28,787	27,238	4,163	4,270	580	4,725	5,020	1,496	696	11,998	23,385	23,076	81.2	84.7	5,402	2,185	1,371	451
	6 mos.	1,228	44,781	3,830	54,054	53,680	7,884	7,936	1,182	9,746	10,117	3,005	1,465	23,400	46,166	45,783	85.4	85.3	7,888	4,298	—244	822
Richmond, Fredericksburg & Potomac	3 mos.	118	5,494	1,031	7,348	6,732	603	574	103	820	955	245	103	2,312	4,388	4,255	59.7	63.2	2,961	1,698	1,087	780
	6 mos.	118	11,068	1,991	14,873	12,872	1,232	1,103	210	1,749	1,826	491	196	4,568	8,962	8,385	60.2	65.1	5,910	3,387	2,170	1,479
St. Louis-San Francisco	3 mos.	4,570	41,841	—	43,844	41,032	5,531	5,473	595	5,726	5,692	2,220	1,522	16,696	31,948	29,601	72.9	72.1	11,896	4,849	5,218	5,121
	6 mos.	4,570	82,943	—	86,957	79,235	11,058	10,914	1,429	11,739	11,255	4,386	3,024	32,997	63,718	57,880	73.3	73.0	23,240	9,119	10,050	9,441
St. Louis Southwestern	3 mos.	1,566	29,409	—	29,816	27,910	2,531	2,322	230	4,798	4,476	2,417	736	9,384	18,212	17,285	61.1	61.9	11,604	5,074	6,694	6,844
	6 mos.	1,566	58,564	—	59,400	53,372	4,786	4,255	452	9,321	8,368	4,788	1,485	18,397	35,530	32,570	59.8	61.0	23,870	9,291	14,856	14,568
Savannah & Atlanta	3 mos.	167	1,197	—	1,235	1,150	226	199	154	213	180	87	27	325	867	822	70.2	71.4	368	277	107	157
	6 mos.	167	2,363	—	2,425	2,341	294	408	162	430	336	173	54	668	1,597	1,646	65.8	70.3	829	561	337	357
Seaboard Coast Line	3 mos.	9,132	111,863	5,237	122,931	109,390	14,471	14,397	1,628	20,443	19,942	6,200	3,355	46,658	90,855	86,419	73.9	79.0	37,076	11,245	10,869	6,127
	6 mos.	9,130	221,457	11,347	244,687	217,264	29,331	28,297	3,228	40,214	39,615	12,325	6,936	92,724	181,589	171,191	74.2	78.8	63,098	22,530	21,695	13,362
Soo Line	3 mos.	4,696	26,108	—	26,715	23,457	3,938	3,249	335	3,625	3,344	912	745	10,231	19,675	17,173	73.6	73.2	7,040	2,315	2,077	2,586
	6 mos.	4,695	50,180	—	51,354	45,867	7,410	6,050	667	7,163	6,394	1,803	1,547	20,079	38,524	33,655	75.0	73.3	12,830	4,306	3,605	5,151
Southern Railway	3 mos.	6,075	91,094	1,182	96,399	84,310	12,478	10,241	1,539	16,034	14,613	5,145	2,142	29,046	64,907	58,843	67.3	69.8	31,492	12,800	14,544	10,134
	6 mos.	6,075	178,639	2,112	189,118	167,411	23,213	19,573	2,843	31,316	29,003	9,876	4,147	58,046	126,858	116,335	67.1	69.5	62,259	25,712	27,823	21,581
Alabama Great Southern	3 mos.	530	9,863	108	10,428	9,373	1,703	1,157	196	1,589	1,691	601	226	4,081	8,163	6,651	78.3	71.0	2,265	419	1,018	1,325
	6 mos.	530	18,971	199	20,085	18,321	4,149	2,289	391	3,720	3,398	1,205	435	7,361	16,868	13,218	84.0	72.1	3,217	774	762	2,467
Cinn., New Orleans & Tex. Pac.	3 mos.	337	13,141	28	13,773	12,532	1,344	1,293	308	2,701	2,597	1,160	304	3,646	8,587	8,307	62.3	66.3	5,186	2,049	3,160	3,044
	6 mos.	337	25,343	59	26,624	24,497	2,566	2,529	540	5,515	5,153	2,216	575	7,286	17,074	16,424	64.1	67.0	9,550	3,999	5,733	5,722
Georgia Southern & Florida	3 mos.	395	3,898	—	4,071	3,805	517	486	39	230	207	26	92	1,128	2,133	1,867	52.4	49.1	1,937	449	503	448
	6 mos.	395	7,901	6	8,312	7,503	1,028	1,064	91	447	396	52	166	2,162	4,122	3,749	49.6	50.0	4,190	1,091	1,051	794
New Orleans & Northeastern	3 mos.	Merged into Alabama Great Southern January 31, 1969																				
	6 mos.	" "	"	"	"	"	"	"	"	"	"	"										
Southern Pacific	3 mos.	11,754	225,321	2,971	235,807	220,569	29,642	28,381	2,896	43,280	41,366	14,526	3,743	92,055	182,362	170,355	77.3	77.2	53,445	22,121	18,601	18,114
	6 mos.	11,755	436,390	5,378	456,472	420,387	54,830	50,477	5,633	85,196	80,451	28,401	7,517	178,990	353,903	325,318	77.5	77.4	102,569	43,161	35,730	34,259
Spokane, Portland & Seattle	3 mos.	922	10,774	156	11,509	9,860	1,508	1,418	190	1,668	1,565	399	132	4,599	8,400	7,432	73.0	75.4	3,109	1,393	878	523
	6 mos.	922	19,513	279	21,104	20,013	2,804	2,907	348	3,444	3,087	799	274	8,815	16,319	15,037	77.3	75.1	4,785	2,288	1,025	1,519
Texas & Pacific	3 mos.	1,936	20,423	72	21,819	20,423	3,502	2,789	427	4,101	3,455	1,258	702	7,869	17,052	15,650	78.2	76.6	4,767	1,335	1,816	2,244
	6 mos.	1,952	40,333	138	43,156	39,165	6,278	5,594	724	7,773	6,997	2,526	1,450	15,636	32,925	30,865	76.3	78.8	10,231	2,881	4,177	3,388
Toledo, Peoria & Western	3 mos.	239	2,344	—	2,473	2,259	377	266	17	244	249	56	182	836	1,826	1,642	73.8	72.7	647	242	164	176
	6 mos.	239	4,659	—	4,932	4,363	641	468	38	467	448	113	363	1,683	3,527	3,124	71.5	71.6	1,405	507	404	358
Union Pacific	3 mos.	9,483	144,436	3,287	155,003	143,761	17,661	17,354	1,939	27,601	27,017	12,058	4,235	55,780	115,375	109,801	74.4	76.4	39,628	18,904	20,178	15,399
	6 mos.	9,483	284,212	5,814	304,852	283,499	34,774	34,262	3,766	54,726	54,151	24,049	8,342	110,772	229,171	217,913	75.2	76.9	75,681	39,717	36,326	31,977
Western Maryland	3 mos.	866	12,861	—	13,735	12,156	1,891	1,876	190	2,939	2,887	948	485	4,644	10,694	10,236	77.9	84.2	3,041	1,529	2,274	1,941
	6 mos.	866	24,350	—	25,875	24,673	3,728	3,737	463	5,776	6,216	1,897	946	9,099	20,992	21,137	81.1	85.7	4,883	2,645	3,736	3,669
Western Pacific	3 mos.	1,176	15,888	449	16,963	16,291	2,372	1,997	282	3,727	2,830	986	933	6,764	15,311	12,692	90.3	77.9	1,652	839	395	1,729
	6 mos.	1,176	31,682	731	33,464	31,704	4,401	4,020	574	7,083	5,643	1,967	1,875	13,385	29,739	25,484	88.9	80.4	3,725	1,885	909	2,962

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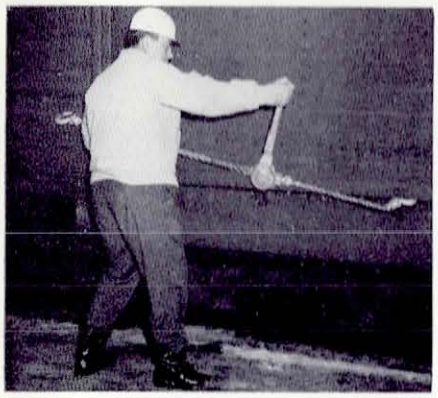
NEW PRODUCTS REPORT



Box-car door opener (RA-1)

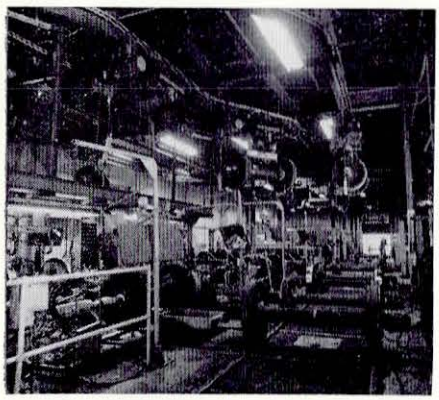
The RADO-15 door opener, a ratchet and pawl lever unit of lightweight, high-strength aluminum, can be quickly dismantled for inspection and maintenance. In use, it requires only 59 lb of lever force to achieve its rated capacity of 1500 lb. Its top hook is equipped with an 18-in. length of coil chain, an arrangement which is said to permit hooking around corners and to eliminate undue stress on opener frame. *Duff-Norton Co.*

Straddle crane (RA-2)

The Model SHU-250 Strad-L-Hoist built first for GE will lift and transport 250,000 lb. It has four hoists, each with an independent capacity of 90,000 lb. When in position, one hoist designed to transverse beam center has a rated capacity of 40,000 lb. Crane has electric wheel drive and rides on four 8-ft 2-in.-diameter tires having a tread width of 3 ft 4 in. It is 23½ ft high, 27 ft 4 in. wide, and weighs 126,000 lb. *R. G. LeTourneau, Inc.*

Bulk-handling unit (RA-3)

Materials of a chemical and grain composition as well as clays and special products are now being handled with Porta-Vac equipment. On the C&NW the new model has been used to transfer eleven 100-ton loads of materials from derailed cars to recovery position, and in the transfer of bulk bentonite, a type of clay weighing 60 lb per cu ft which, when shipped in bulk, is ground to the fineness of face powder. *Zimmerman Equipment Co.*



Conveyor system (RA-4)

An overhead monorail system with automatic dispatch from storage areas has increased efficiency at the Penn Central wheel shop at Hollidaysburg, Pa. The system moves wheel-and-axle sets to journal and tread lathes by means of monorail carriers with twin-hook electric hoists. The system is sequenced for four operations in a culmination of automatic and manual dispatching. The wheelset is not only delivered to the lathe operator, but the system also provides the mechanisms for loading and unloading his machine. At each machine is a standby position which actuates the system to deliver another workpiece whenever the operator loads his machine. The memory relays in the system "remember" the sequence of moves at all lathes so that there is no excessive build-up of stock either at the inlet or outlet side of any of the lathes. *Whiting Corp.*

RAILWAY AGE
THE TRANSPORTATION WEEKLY

30 Church Street, N.Y., N.Y. 10007 READERS' SERVICE (Att. J. Lindstrom)

PLEASE SEND ADDITIONAL INFORMATION ABOUT PRODUCTS IN ADVERTISEMENTS NUMBERED: 1 2 3 4 5 6 7 8 9 10 11 12 13 14

PLEASE SEND INFORMATION ABOUT PRODUCTS DESCRIBED ON PAGE 32 MARKED: RA-1 RA-2 RA-3 RA-4

NAME ..... TITLE .....

COMPANY .....

ADDRESS .....

CITY ..... STATE ..... ZIP .....

• Inquiries can be processed only if title and company are shown. 10/13/69

PEOPLE IN THE NEWS

ASSOCIATION OF AMERICAN RAILROADS.—J. C. B. Ehringhaus, Jr., named assistant to the vice president, Legislative Department.

BALTIMORE & OHIO.—F. J. Seiz appointed regional sales manager World Commerce, New York, succeeding **F. L. Skinner, Jr.** (RA. Sept. 8, p. 35). **J. P. Gallagher** succeeds Mr. Seiz as district sales manager, New York.

T. F. Riner, assistant general freight agent, Richmond, named assistant freight traffic manager there, succeeding **P. W. Phillips.**

BESSEMER & LAKE ERIE—DULUTH, MISSABE & IRON RANGE—ELGIN, JOLIET & EASTERN—LAKE TERMINAL—UNION.—Francis S. Hoist appointed senior engineer—operations research, Pittsburgh.

BIRMINGHAM SOUTHERN. — Van L. Hayes, Jr., staff assistant—traffic, appointed assistant traffic manager, Fairfield, Ala.

BURLINGTON.—J. C. Stewart named sales representative, Dallas, to succeed **N. H. Hill,** resigned.

CANADIAN NATIONAL.—A. Ray Williams, manager, Toronto Area, appointed general manager, Atlantic Region, Moncton, N.B., succeeding **Colin T. Cameron,** named general manager in charge of a review of the CN system corporate organization. **Stuart E. Spencer,** manager, Lakehead Area, Port Arthur, Ont., succeeds Mr. Williams. **R. A. Walker,** operations manager, Port Arthur, succeeds Mr. Spencer.

Ronald E. Lawless, general superintendent of express freight, Great Lakes region, Toronto, appointed system manager, container development, succeeding **Rupert J. Tingley,** named regional manager of marketing, Atlantic region. **Peter A. Clarke,** general superintendent express, Atlantic Region, Moncton, N.B., succeeds Mr. Lawless. **Aubrey L. Bates,** assistant to the Maritime area manager, named assistant general superintendent express, Atlantic Region. **Charles B. Fowler,** superintendent of express, Maritime Area, transferred to the Southwestern Ontario area, London, Ont. **Arley B. Enright,** superintendent of express, Chaleur area, succeeds Mr. Fowler.

R. J. Hansen, deputy chief engineer, appointed chief engineer—system, Montreal. **W. J. Wood,** track material inspector, Belleville, Ont., appointed coordinator maintenance methods, system, Montreal. **R. W. Tipper,** assistant engineer of tests, appointed engineer, administration, Prairie Region, Winnipeg, Man., succeeding **F. J. Farish,** assigned to special duties, regional engineering.

J. E. Skinner, regional research officer, appointed manager, management services, Prairie Region, with headquarters as before at Winnipeg.

A. J. Percival, trainmaster, Lakehead area, promoted to terminal superintendent Winnipeg, succeeding **N. R. Smith,** appointed transportation officer, Prairie Region. **C. L. Brown,** trainmaster, Saskatoon, Sask., appointed transportation assistant there. **R. S. Henry,** road foreman at The Pas, Man., named master mechanic, Saskatoon. **T. H. Randles,** acting trainmaster, Saskatoon, **C. R. Fairbairn,** trainmaster-road foreman, Saskatoon, and **W. J. Armstrong,** Port Arthur, named trainmasters, Saskatoon. **Charles Cowie,** trainmaster-road foreman at Regina, appointed assistant superintendent there. **W. H. Olmstead** named assistant superintendent, Prince Albert, Sask. **B. C. Unsworth,** chief dispatcher, Saskatoon, appointed transportation assistant, Hudson Bay Area, Dauphin, Man. **E. G. Wilkins** appointed master mechanic and **J. K. Heaps,** assistant superintendent, Hudson Bay Area, Dauphin. **A. A. Rushby,** trainmaster—road foreman, The Pas, named assistant superintendent there; **B. W. Hogan,** general yardmaster, Saskatoon, appointed trainmaster, The Pas. **J. F. Maloney,** assistant general yardmaster, Port Arthur, named trainmaster, Canora.

Raymond R. Goodwin, terminal traffic manager, Ottawa, Ont., transferred to Halifax, succeeding **J. A. Salterio,** retired.

Thomas G. Quiggin, assistant freight claims agent, Moncton, appointed manager of merchandise claims, Atlantic Region, succeeding **J. G. Heavyside,** retired.

CHESEAPEAKE & OHIO—BALTIMORE & OHIO.— D. C. Sweeney appointed manager—special equipment Baltimore, succeeding **J. Tierney.**

Ray J. Dullard, auditor of revenues, Baltimore, named assistant comptroller there. **Edwin P. Idzikowski,** assistant auditor, revenues—freight accounts, succeeds Mr. Dullard as auditor of revenues. **Albert L. Cummings,** assistant auditor of revenues—reports and statistics, succeeds Mr. Idzikowski. **Patrick R. Hickey,** auditor, revenue reports and statistics, succeeds Mr. Cummings.

James R. Lilly, Jr., assistant engineer of coal properties, appointed assistant director of coal deve'opment, Huntington, W.Va. **John W. F. Rudnicki,** engineer of oil and gas properties, appointed engineer of coal, oil and gas properties. **Harold L. Beattie,** assistant to vice president, B&O, named chief engineer of coal properties, with headquarters as before at Fairmont, W.Va.

CHICAGO & NORTH WESTERN. —J. L. Simons and **D. E. Swenumson** appointed division engineers, Wisconsin division, Milwaukee, and Missouri division, Oelwein, Iowa, respectively.

E. A. McPartling, district sales representative, Dallas, named regional sales manager there.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—Frank M. Kaylor named vice president.

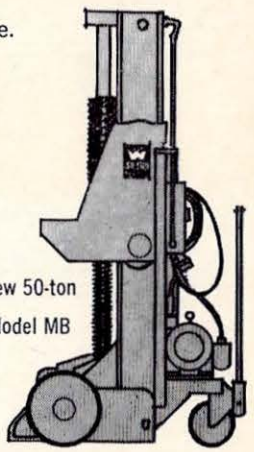
DULUTH, WINNIPEG & PACIFIC.—H. C. Lear, assistant area engineer, Duluth, Minn., named assistant manager of the DW&P, succeeding **W. A. Eddy,** who has

locomotive could spoil your whole day

Since you don't need a fumble like that — you ought to be using Whiting portable jacks. They lift electro-mechanically. If the lights go out, mechanically set brakes, together with self-locking gears, hold the load in place.

We've added a new 50-ton model to our popular 25- and 35-ton unit line. You can operate any of them in unison or in groups of two or four via interlocking controls. All models and performance features are described and illustrated in our latest bulletin.

Write for one.
Or ask for
a conference.



WHITING CORPORATION
HARVEY, ILLINOIS 60426 U.S.A.

Circle 10 on coupon page 32

T. M. Mabon
Frisco

O. C. Putsche
M-K-T

Roger J. Crosby
NP

Robert J. Slater
PC

Richard D. Spence
SP

O. D. Goodwill
SP

retired after 41 years of service.

FRISCO.—T. M. Mabon, district sales manager, Fort Smith, Ark., appointed executive representative, Washington, D.C. Mr. Mabon's successor is **T. D. Patton,** assistant district sales manager, Fort Smith.

GENESEE & WYOMING.—Peter A. Mastrolio appointed transportation superintendent—personnel manager, Retsof, N.Y.

LOUISVILLE & NASHVILLE.—Rowland W. Jones, Jr. named assistant director of marketing research, Louisville. He was formerly assistant to general superintendent, **Atlanta & West Point—Georgia—Western of Alabama,** Atlanta.

MISSOURI-KANSAS-TEXAS. — O. C. Putsche, assistant general manager, promoted to general manager, with headquarters in Denison, Tex.

MISSOURI PACIFIC-TEXAS & PACIFIC.—Frank J. Conrad, senior vice president, retired Oct. 1.

H. R. Kastman, assistant general passenger agent, Little Rock, Ark., retired Sept. 30, after more than 44 years' service.

NORTHERN PACIFIC.—Roger J. Crosby, western counsel, named vice president and western counsel, with headquarters remaining in Seattle.

D. M. Peterson, assistant manager of pricing-trans-continental, appointed marketing manager-machinery, farm implements and motor vehicles. **G. E. Gouette,** assistant to the director of pricing, St. Paul, succeeds Mr. Peterson, and in turn is succeeded by **W. A. Baldwin. E. T. Aune** named general agent at the newly established Boise, Ida., traffic office. **A. J. Baldasty** appointed general agent, freight department, Chicago.

L. C. Anderson named assistant to vice president-traffic, St. Paul, succeeding **E. E. Chapman,** who retired Oct. 1 after more than 39 years of service.

PENN CENTRAL.—Dr. Stanley J. Cyran, medical director, named assistant vice president—medical services, Philadelphia.

W. J. Hufnell appointed superintendent—labor relations and personnel, New Haven Region, New Haven, Conn.

Robert J. Slater, division superintendent, Toledo, Ohio, appointed general superintendent transportation, Lake Region, Cleveland, succeeding **Bert L. Strohl** (RA, Sept. 1, p. 30).

READING.—James E. Frick, assistant general attorney, promoted to general attorney, Philadelphia. **B. David Sigman,** who has been associated with the Reading since 1967, succeeds Mr. Frick. **Joel E. Mazor,** assistant attorney general, Pennsylvania Department of Highways, joined the Reading as assistant general attorney.

RICHMOND, FREDERICKSBURG & POTOMAC.—E. B. Luck, manager passenger sales, Richmond, retired Sept. 1.

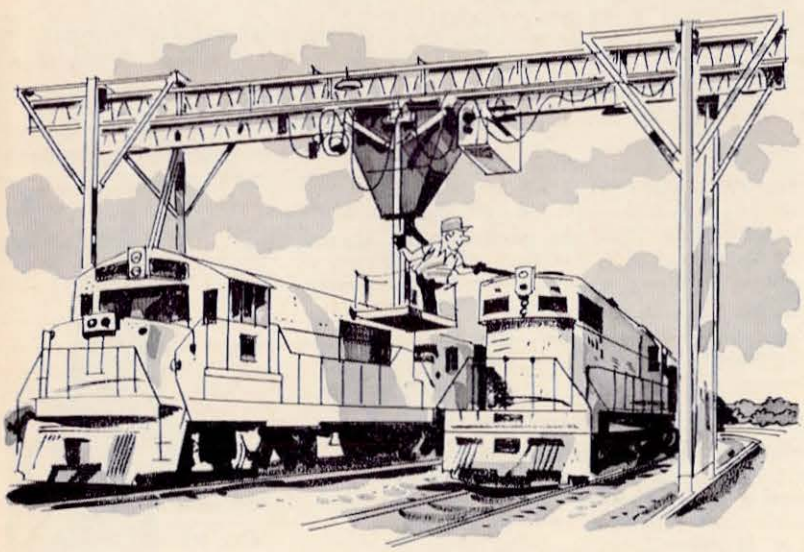
SOUTHERN PACIFIC.—Richard D. Spence, assistant vice president of system operations, named vice president-operations, to succeed **William D. Lamprecht** who retired Sept. 30.

P. F. Satterwhite, Jr. appointed superintendent of safety for SP's Texas and Louisiana lines and the St. Louis Southwestern Railway. Mr. Satterwhite, formerly senior assistant superintendent, Dallas division, Ennis, Tex., will have headquarters at Houston.

O. D. Goodwill, superintendent of transportation, appointed assistant general superintendent of transportation. Mr. Goodwill's successor is **A. W. Keith,** general supervisor of diesel power.

UNION PACIFIC.—John H. Pender elected assistant to the vice chairman of the railroad and assistant to the president of **Union Pacific Corp.** Mr. Pender, who was formerly vice president, **Baker, Fentress & Co.,** Wilmington, Del., will have headquarters in New York.

Whiting service gantries are so talented!



They sand and lubricate . . . move up to, over and around stationary locomotives . . . can service two tracks at once . . . indoors or out. And they can operate from top-riding or underhung cranes. Since one man runs them, you can imagine the money they save. If your job is to get more for less, better send for details.

WHITING CORPORATION
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MARKET OUTLOOK

CARLOADINGS

Loadings of revenue freight in the week ended Oct. 4 totaled 599,957 cars, the Association of American Railroads announced on Oct. 9. This was an increase of 6,493 cars, or 1.1%, compared with the previous week; an increase of 31,560 cars, or 5.6%, compared with the corresponding week last year; and an increase of 17,338 cars, or 3.0%, compared with the equivalent 1967 week. Ton-miles generated by carloadings in the week ended Oct. 4 are estimated at 16.0 billion, an increase of 6.9% above the corresponding week of 1968, and 7.8% above the 1967 week.

REVENUE FREIGHT CARLOADINGS

Commodity	Sept. 27 week	Preceding week	Per cent change
Grain	25,092	24,123	+ 4.0
Farm products	17,960	15,459	+16.2
Metallic ores	54,293	57,961	— 6.3
Coal	107,308	106,476	+ 0.8
Crushed stone, gravel & sand	33,242	34,567	— 3.8
Nonmetallic minerals	11,205	11,268	— 0.6
Grain mill products	22,017	21,613	+ 1.9
Food & kindred products	26,679	25,892	+ 3.0
Primary forest products	24,094	25,527	— 5.6
Lumber & wood products (except furniture)	16,177	15,816	+ 2.3
Pulp, paper & allied products	26,483	24,494	+ 8.1
Chemicals & allied products	28,301	28,276	+ 0.1
Petroleum products	11,526	11,905	— 3.2
Stone, clay & glass products	23,430	23,711	— 1.2
Coke	8,655	8,701	— 0.5
Metals & products	29,283	28,404	+ 3.1
Motor vehicles & equipment	26,212	25,793	+ 1.6
Waste & scrap materials	15,749	16,028	— 1.7
Forwarder & shipper assn. traffic	8,528	8,345	+ 2.2
All other carloads	75,540	73,825	+ 2.3
LCL traffic	1,690	1,734	— 2.5
Total cars loaded	593,464	589,918	+ 0.6

CUMULATIVE TOTAL, 39 WEEKS	1969	1968	1967
	21,039,860	21,176,891	20,979,299

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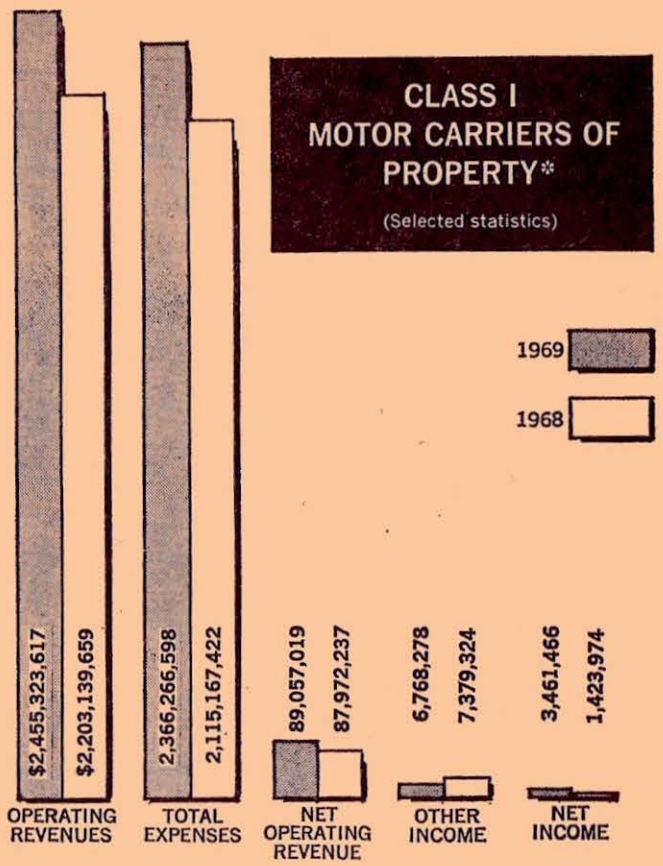
U. S. piggyback loadings for the week ended Sept. 27 totaled 28,565 cars, carrying 46,972 trailers, compared with 28,988 cars, carrying 48,627 trailers, in the corresponding 1968 week. Loadings for 1969 up to Sept. 27 totaled 1,003,486 cars, carrying 1,647,833 trailers, compared with 995,616 cars, carrying 1,619,574 trailers, in the corresponding period of 1968.

IN CANADA

Cumulative	Revenue Cars Loaded	Total cars Rec'd from Connections
Sept. 14, 1969	2,511,684	855,475
Sept. 14, 1968	2,617,273	865,795

CLASS I MOTOR CARRIERS OF PROPERTY*

(Selected statistics)



*Carriers with operating revenues of $1,000,000 or more.
Source: Bureau of Accounts, ICC. Based on reports of 1,326 intercity carriers.

NEW ORDERS FOR MACHINE TOOLS*

	August 1969 ($000)	August 1968 ($000)	8 mos. 1969 ($000)	8 mos. 1968 ($000)
Metal cutting tools	67,600	79,750	863,450	722,000
Metal forming tools	39,450	26,750	403,450	195,900

MACHINE TOOL SHIPMENTS*

	August 1969 ($000)	August 1968 ($000)	8 mos. 1969 ($000)	8 mos. 1968 ($000)
Metal cutting tools	72,800	88,950	767,850	901,300
Metal forming tools	29,300	32,900	252,850	244,350

*Including foreign and domestic.
Source: National Machine Tool Builders' Association.

YOU OUGHT TO KNOW

PC installs new telephone system for train info

A specially designed telephone call distribution system has been installed in New York's Pennsylvania Station by Penn Central. The system, handling calls from principal New York state terminals and from stations in Newark and Trenton, increases the number of incoming phone lines from 60 to 200. It automatically answers and distributes calls to 73 phones manned by information and reservation clerks.

New proposal made for D. C. station

The possibility of a Madison-Square-Garden type of rail terminal development for Washington, D.C., loomed last week, as Rep. Joel T. Broyhill (R.-Va.) announced that he would integrate his plan for a 20,000-seat Eisenhower National Memorial Arena with proposals by the National Planning Commission for renovation of Washington's Union Station into a national visitor center.

LIRR now the nation's best? Rocky says yes

On Aug. 7, New York Governor Nelson A. Rockefeller promised rebellious Long Island Rail Road commuters that they would have the nation's finest commuter line within two months. Last week Rockefeller asserted that this feat had been accomplished. There was general agreement that substantial improvements had been made—there were no train cancellations Oct. 7; only one train ran late; and most trains had their full complements of cars. But most papers made odious comparisons, the Chicago & North Western being the most frequently mentioned contender for the title. Rockefeller's rationale: LIRR must be the nation's finest; otherwise, how could so much progress have been made in so short a time?

Tank-car rentals get airing at the ICC

The question of how much railroads should pay for the use of tanks cars supplied by outside owners got four hours of oral argument before ICC's Division Two last week, and the issue may not end there. Either Division Two will uphold the April 14 examiners' recommendation that rails pay more than they had proposed, or the question will move up to the entire Commission as a matter of general transportation interest. The oral argument resulted from an AAR request June 1, after two ICC examiners had recommended raises of two to three cents for each of the six age categories established by the AAR to replace a tri-level plan that ICC rejected late last year. Only 5,000 of the 175,000 tank cars now moving liquid commodities are owned by railroads.

Truck-tonnage index drops from year-ago figure

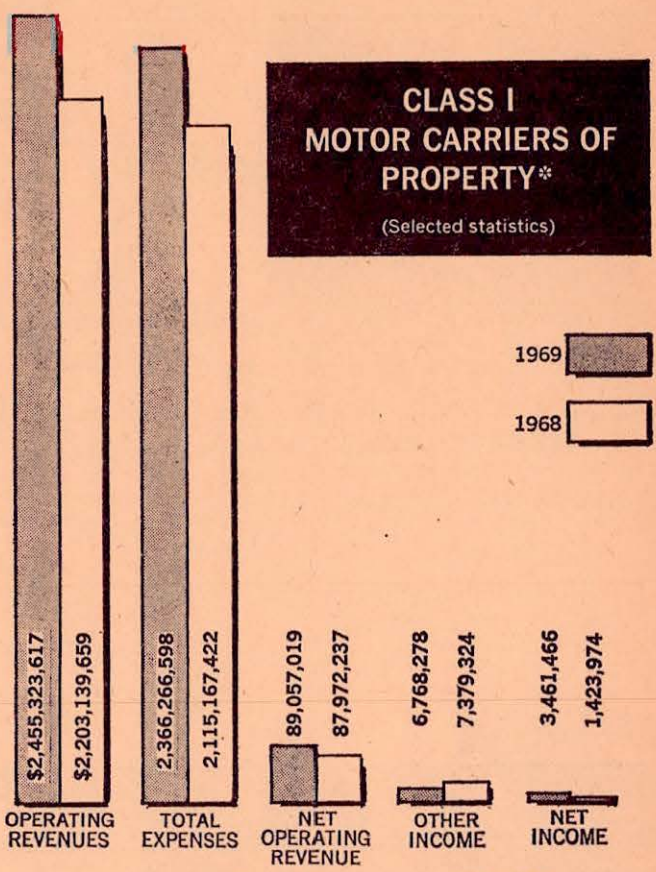
The index of truck tonnage for the week ended Sept. 27 was 138, compared with 139 for the corresponding week in 1968 according to American Trucking Associations. The index for the preceding week of this year was 137. The weekly level of tonnage hauled during the period 1957-59 is taken as 100.

Hawaii option is added to Railway Age tour

An optional stopover in Hawaii has been added to the itinerary of the Far Eastern Railway Seminar tour which Railway Age will conduct April 9-25, 1970. The main object of the tour—which is open to professional railroaders, railroad suppliers and members of their families—is the Third International Symposium on Railway Cybernetics in Tokyo, to which members of the Railway Age tour will be admitted as official observers.

The tour will also include travel on Japan's New Tokaido Line; Expo 70 in Osaka; an inspection tour over the railway of South Korea; and visits to rail transit facilities for those interested. Returning to the U.S. on April 25, tour members will have the option of stopping in Hawaii for whatever period they desire.

The tour will be conducted by Railway Age Publisher Robert G. Lewis and Editor Luther S. Miller. The detailed itinerary and other relevant information are available from the Publisher, Railway Age, 30 Church St., New York, N.Y. 10007.



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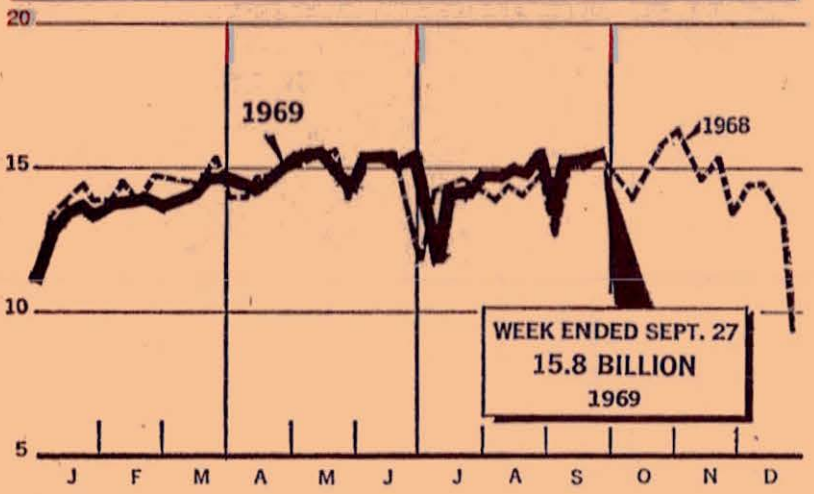
RAIL FREIGHT TRAFFIC TRENDS

BILLION TON-MILES (Estimated)



Source: Association of American Railroads

SHIPMENTS OF RAILROAD STEEL PRODUCTS

(JULY AND SEVEN MONTHS 1969)

	NET TONS			
	July	Per Cent Change*	Seven Months	Per Cent Change*
Rails, trackwork and equipment	63,677	−43.9	700,505	+2.4
Freight and passenger cars and locomotives	175,351	−5.9	1,388,342	+4.1
Street railways and rapid transit systems	7,566	+23.2	28,471	34.5

*Per cent change compares 1969 periods with like 1968 periods.
Source: American Iron and Steel Institute.

Current Statistics

Net Income, Class I roads	
Six months, 1969	$265,000,000
Six months, 1968	278,000,000
New freight cars on order	
Sept. 1, 1969	47,915
Sept. 1, 1968	16,255
New freight cars delivered	
8 mos., 1969	43,179
8 mos., 1968	38,618
Serviceable cars	
Aug. 1, 1969	1,365,892
Aug. 1, 1968	1,393,000

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FREIGHT-TRAIN CARS

● *Great Northern.*—Ordered 50 100-ton, 61½-ft bulkhead flat cars from Thrall Car. Cars will be equipped with end-of-car cushioning and chain tie-down devices. Deliveries are scheduled for April 1970.

● *Missouri Pacific.*—Ordered 1,000 new freight cars and 20 new diesel locomotive units (see below) at a cost of more than $23,200,000. Freight-car orders were placed as follows: ACF—400 60-ft, 100-ton box cars equipped with load-restraining devices, cushion underframes and roller bearings; Pacific Car & Foundry—100 50½-ft, 70-ton insulated box cars with cushion underframes and load dividers; Pullman-Standard—500 100-ton, 7,740 cu-ft-capacity covered hopper cars with roller bearings. Delivery of the new cars is scheduled to begin in the first quarter of 1970.

● *Trailer Train.*—Ordered 666 new cars as follows: 137 89-ft, 4-in. low-level cars from ACF; 258 89-ft, 4-in. standard-level and 60 68-ft, 100-ton bulkhead cars from Bethlehem Steel; and 196 89-ft, 4-in. low-level and 15 60-ft flat cars from Pullman-Standard. This brings TTX purchases of new cars since Jan. 1 to 5,356. As of Oct. 3, TTX had 53,877 cars in service or on order.

LOCOMOTIVES

● *Missouri Pacific.*—Ordered 20 3,000-hp diesel-electric locomotives as follows: From Electro-Motive—16 SD-40 units; from General Electric—four U-30-C units.

CAPITAL EXPENDITURES

● *Soo Line.*—Directors have authorized purchase of 285 freight cars and four 3,000-hp diesel-electric locomotive units at a cost of $5,200,000. Freight cars will include 170 70-ton box cars equipped with cushion couplers and load-protection devices; 50 open-top, high-side gondola cars; 50 open-top hopper cars; and 15 cars especially equipped for transporting and protecting potatoes in bulk. In addition, the board authorized the repair and upgrading of 100 box cars at a cost of $392,000.

TRANSIT

● *Chicago South Suburban Mass Transit District.*—Ordered 123 doubledeck, air-conditioned electric commuter cars from St. Louis Car Division of General Steel Industries at a total contract cost of $37,797,372. First units are to be delivered within 14 months.

● *Metropolitan Transportation Authority.*—A $69.48-million contract will be awarded to a joint venture group for construction of the 63rd Street subway tunnel under New York's East River.

YOU OUGHT TO KNOW

PC installs new telephone system for train info

A specially designed telephone call distribution system has been installed in New York's Pennsylvania Station by Penn Central. The system, handling calls from principal New York state terminals and from stations in Newark and Trenton, increases the number of incoming phone lines from 60 to 200. It automatically answers and distributes calls to 73 phones manned by information and reservation clerks.

New proposal made for D. C. station

The possibility of a Madison-Square-Garden type of rail terminal development for Washington, D.C., loomed last week, as Rep. Joel T. Broyhill (R.-Va.) announced that he would integrate his plan for a 20,000-seat Eisenhower National Memorial Arena with proposals by the National Planning Commission for renovation of Washington's Union Station into a national visitor center.

LIRR now the nation's best? Rocky says yes

On Aug. 7, New York Governor Nelson A. Rockefeller promised rebellious Long Island Rail Road commuters that they would have the nation's finest commuter line within two months. Last week Rockefeller asserted that this feat had been accomplished. There was general agreement that substantial improvements had been made—there were no train cancellations Oct. 7; only one train ran late; and most trains had their full complements of cars. But most papers made odious comparisons, the Chicago & North Western being the most frequently mentioned contender for the title. Rockefeller's rationale: LIRR must be the nation's finest; otherwise, how could so much progress have been made in so short a time?

Tank-car rentals get airing at the ICC

The question of how much railroads should pay for the use of tanks cars supplied by outside owners got four hours of oral argument before ICC's Division Two last week, and the issue may not end there. Either Division Two will uphold the April 14 examiners' recommendation that rails pay more than they had proposed, or the question will move up to the entire Commission as a matter of general transportation interest. The oral argument resulted from an AAR request June 1, after two ICC examiners had recommended raises of two to three cents for each of the six age categories established by the AAR to replace a tri-level plan that ICC rejected late last year. Only 5,000 of the 175,000 tank cars now moving liquid commodities are owned by railroads.

Truck-tonnage index drops from year-ago figure

The index of truck tonnage for the week ended Sept. 27 was 138, compared with 139 for the corresponding week in 1968 according to American Trucking Associations. The index for the preceding week of this year was 137. The weekly level of tonnage hauled during the period 1957-59 is taken as 100.

Hawaii option is added to Railway Age tour

An optional stopover in Hawaii has been added to the itinerary of the Far Eastern Railway Seminar tour which Railway Age will conduct April 9-25, 1970. The main object of the tour—which is open to professional railroaders, railroad suppliers and members of their families—is the Third International Symposium on Railway Cybernetics in Tokyo, to which members of the Railway Age tour will be admitted as official observers.

The tour will also include travel on Japan's New Tokaido Line; Expo 70 in Osaka; an inspection tour over the railway of South Korea; and visits to rail transit facilities for those interested. Returning to the U.S. on April 25, tour members will have the option of stopping in Hawaii for whatever period they desire.

The tour will be conducted by Railway Age Publisher Robert G. Lewis and Editor Luther S. Miller. The detailed itinerary and other relevant information are available from the Publisher, Railway Age, 30 Church St., New York, N.Y. 10007.

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CF&I Steel

A. N. Hawa
CF&I Steel

A. Hugh Paton
MLW-Worthington

John H. Parker
MLW-Worthington

Robert S. Bergner
MLW-Worthington

SUPPLY TRADE

F. V. A. Stady has been appointed assistant manager of sales—Canada, **National Castings Division, Midland-Ross Corp.** Mr. Stady has spent the last 12 years selling the National Castings line for Railway Supply Co., now part of IEC-Holden, Ltd., from offices in Montreal, Toronto and Winnipeg. Prior to that, Mr. Stady spent 20 years in the Mechanical Department, **Canadian National.**

C. Jack Lano has been elected vice president-administration and controller, **CF&I Steel Corp. A. N. Hawa** has been elected vice president and treasurer.

A. Hugh Paton has been appointed vice president, **Rail and Transit Development Division** of **MLW-Worthington Limited,** Montreal. He had been director of planning and research. **John H. Parker** has been appointed design co-ordinator and **Robert S. Bergner,** manager of production engineering, Rail and Transit Development Division. Mr. Parker was formerly manager of production engineering, transportation division. Mr. Bergner was chief engineer, production and cost engineering, **Alco Products, Inc.,** Schenectady, N. Y., prior to joining MLW-Worthington this year.

John E. Travers has been appointed general manager, Research and Development Division, **Miner Enterprises Inc.,** Chicago.

Containerfreight Corp., Long Beach, Calif., has opened a container freight distribution center to service the Los Angeles-Long Beach harbor districts.

T. R. Elmblad, district sales manager, **Whiting Corp.,** New York, has been named assistant general sales manager, Harvey, Ill.

OBITUARY

Andrew T. Stewart, 63, retired purchasing agent, **Chicago & Eastern Illinois,** died Sept. 27 in St. James Hospital, Chicago Heights, Ill.

Maurice Newlin Trainer, 80, who retired in 1956 as vice chairman and president, **American Brake Shoe Co.** (now **Abex Corp.**), died Sept. 28 in Orange Memorial Hospital, N.J.

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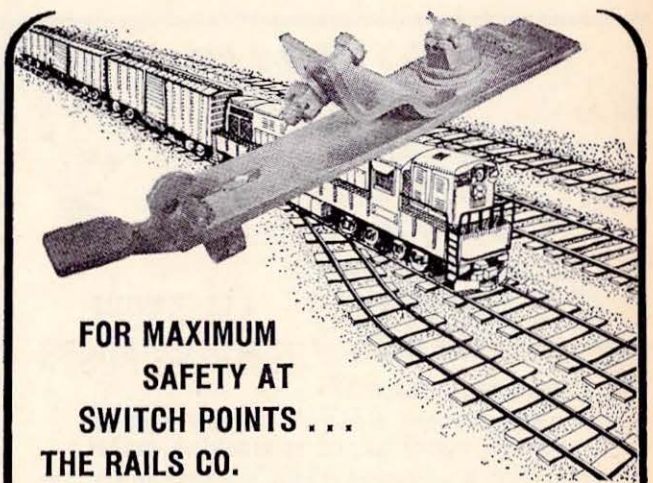

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LUTHER MILLER

AS THE EDITOR SEES IT

"CONSUMERISM" is a word so new that it has not yet found its way into the dictionaries. It describes the revolt of consumers against the predations, real and imagined, of producers. Commerce Secretary Maurice Stans thinks we may have had too much of it. The Ralph Naders and the Bess Myerson Grants think we have not had enough of it.

IT HAS TOUCHED RAILROADS in the area of passenger operations. Our own Ralph Nader is Tony Haswell, a lawyer who heads an organization called the National Association of Railroad Passengers (NARP). Within the railroad industry, Haswell is both ho-hummed and hurrahed. Say what you will, he has done an effective job representing the interests of the 1% of all intercity travelers who still ride the rails. Maybe it was inevitable that railroad "consumerism" should begin here. But does it have to end here?

CONSUMERS HAVE AN INTEREST in railroads that far transcends the fate of the "Sunset" or the "Zephyr," but are they really aware of it? Do they know that while railroads haul only 1 out of every 100 intercity passengers, they carry 41 out of every 100 tons of freight that moves in interstate commerce? Do they realize what the railroads' 1.1-cents-per-ton-mile cost (vs the truckers' 6.5 cents) means to their own pocketbooks? Do they really believe that this bargain can long survive if the tail continues not only to wag the dog, but beat it to death in the process? The tail, in this case, is the passenger train.

WE NEED A TONY HASWELL on the freight side. We need a strong dose of transportation consumerism where it really affects the consumer. For every NARP, we need at least 40 NARUs. That stands for National Association of Railroad Users. All of them. Not just 1%.

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VIEWPOINT

Truckers help themselves —To $435 million

Whenever railroads suggest that all of their troubles are not of their own making, somebody is bound to throw back at them Ben Franklin's pious proclamation of two centuries ago: "God helps them that help themselves."

Truckers are especially quick with such advice. "Help yourself. Stop blaming everybody else for your troubles," rumble these champions of self-reliance.

Railroad men will be the last to deny that the truckers have helped themselves. They have helped themselves to such a large chunk of the taxpapers' money that almost nobody will believe it. Nobody, at least, in Congress which for years has accepted—and continues to accept—the truckers' argument that they are paying their full share of highway costs.

Railroads continue to talk about government-subsidized competition, but with increasing timidity. Who wants to be stuck with a cry-baby label?

But it is a different thing entirely, we submit, when a non-railroader of high repute, using non-railroad statistics, comes up with some exceedingly damning evidence on the subject. We have reference to Pierre Bretey, the dean of Wall Street transportation analysts. In his annual report on railroads, prepared in association with Karl Ziebarth for the investment firm of Hayden, Stone, Bretey is very specific about the extent to which the railroads' highway competitors are being subsidized by tax dollars.

He does not make the mistake—as do too many railroad men—of merely listing the astronomical sums that go into highway construction. After all, commercial users of these highways do pay many millions of dollars in user charges. What Bretey wanted to know was the difference between what truckers were getting out of the taxpayers and what they were paying back.

His conclusion: "A total subsidy of $435 million or more was paid to the truckers in 1964."

To arrive at this figure, Bretey used, in the first place, a study prepared by the Bureau of Public Roads in 1965. "The Bureau found that heavy trucks, which comprise the bulk of the intercity truck fleet, were responsible for 21.3% of the Federal outlays, on an incremental cost basis. Based on total Federal expenditures for highways of $4,278,000,000 in that year, the trucking industry was responsible for $911.2 million of these outlays. The study showed that the total taxes paid by the operators of this class of vehicles—both to the highway trust fund and to the general fund of the United States—amounted to $648.4 million, leaving a deficit of $262.8 million to be borne by the hapless taxpayer."

The BPR study did not cover state and local highways. But using accepted, and very conservative, methods of extrapolation, Bretey arrived at the conclusion that "about $170 million of the benefits which the trucking industry receives [from state and local outlays] goes unrecovered, and thus constitutes a direct subsidy."

When railroad men talk like this, they're called cry-babies. But isn't a $435 million gift to your competitor—when you're paying all of your own roadway costs—something to cry about?

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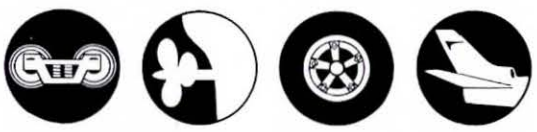

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